# *Taking a Phone Call*

## AS HE ROLLS ALONG!

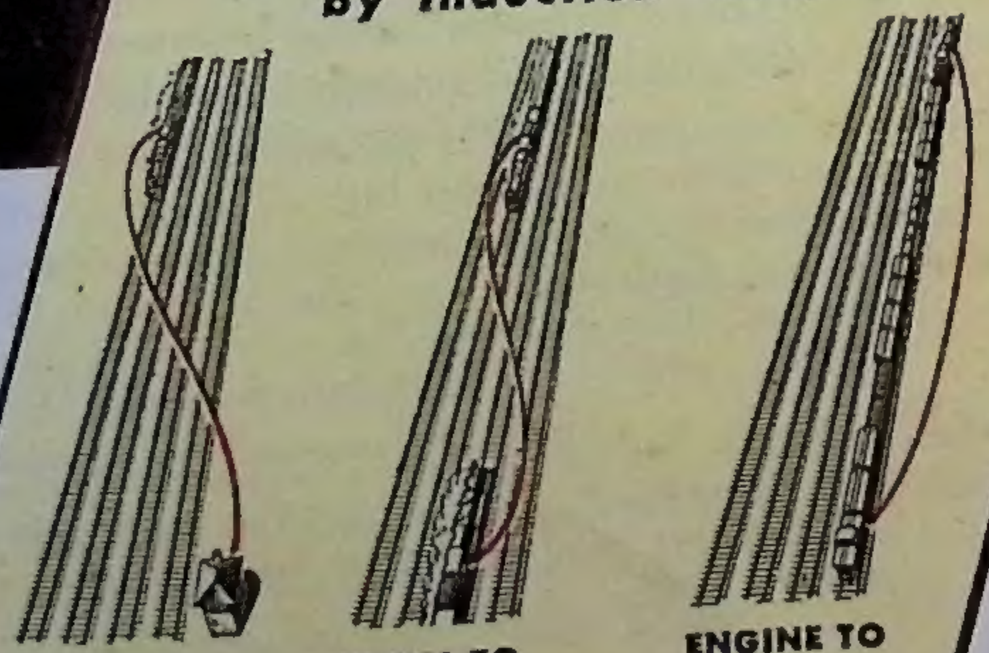
*Buy United States Victory Bonds and Stamps*

A railroad engineer in his locomotive cab answering a telephone call from the engineer of another train . . . or from the towerman in a railroad signal tower . . . or from the freight conductor in a distant caboose—*while his train rolls along.*

Not only has that become reality on the Pennsylvania Railroad—but installations are now being made on the main line on a big scale.

This train telephone system is a creation of Pennsylvania Railroad research, worked out in conjunction with the Union Switch and Signal Company. Tested and proved, it adds still further to established signaling, communicating and safety devices which make American railroads the safest transportation in the world!

**ALL LINKED TOGETHER**
**by Induction Telephone**



TRAIN TO TOWER — TRAIN TO TRAIN — ENGINE TO CABOOSE

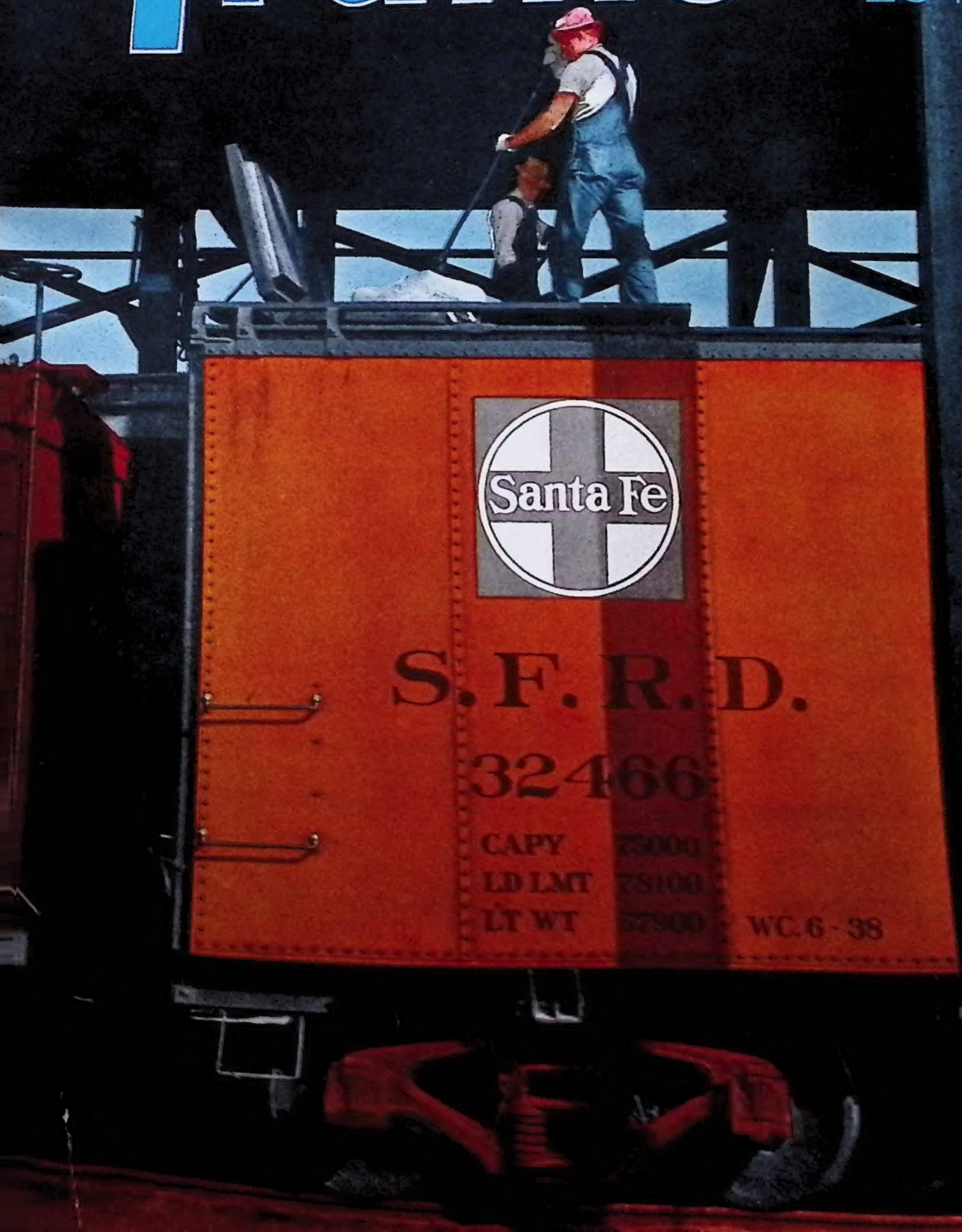
**PENNSYLVANIA RAILROAD**

*Serving the Nation*

# Trains

October
1945

25¢



# IT'S ALWAYS A STRAIN MOVING ARMIES

FOR nearly four years we were building up our forces in Europe—to do a job. The job was done—and how!

And now, in the short space of 10 months or less, the millions of men who did the job in Europe are coming home—and along with them, the other millions who did the Pacific job, too. The end of the war does not mean that train travel will be less.

The total train travel this year will be nearly five times what it was before the war.

All this must be done with virtually the same equipment available in 1940, for during the war years the railroad program of buying new cars was halted by the government because of other and more pressing war needs.

This means that now everything that rolls must be pressed into service. Sleeping cars have been taken off regular trains on all runs of less than 450 miles, so that approximately two-thirds of all sleeping cars are now available for troop train service. Coaches are being taken off regular trains. What's left in regular trains must serve not only civilians but a heavy military traffic as well. So travel is difficult for all—civilians as well as soldiers.

The railroads have two great needs—more cars and more men. Government agencies, military and civilian, are cooperating to recruit the men to help in moving the record load which is just ahead.

Since V-E Day, the government has authorized the building of passenger cars but not many can be completed in time to help meet the present peak travel load.

In the meanwhile, railroad equipment and railroad men are working harder than ever before—for the railroads must do the job with what they have.

**AMERICAN RAILROADS**

# *Unrationed Luxury* IN NEW C & E I DINER

Ordered many months ago, the C & E I will be among the first railroads in the country to place in service one of the sensationally new dining cars originated by Pullman-Standard for their famous "Trains of Tomorrow." It has been especially designed for our fast, new streamliner which is scheduled to make a round trip daily between Chicago and Evansville.

In keeping with our determination to make C & E I dining service, equipment and cuisine outstanding, this car is the last word in luxury and modern facilities. Its novel arrangement of tables will afford more comfort and privacy for diners, and maximum passageway for both passengers and attendants. It will provide a delightful setting for delicious meals, prepared by master chefs in spotless kitchens, and served by a courteous, attentive staff.

Another lightweight, streamlined train is on order for the Chicago-Southern Illinois run. Although it will be some months before these trains are ready, we want shippers and passengers in the C & E I territory to know that our program to give them the finest possible transportation and service is already well advanced.

SPEED C&EI SERVICE The CHICAGO Line

**CHICAGO & EASTERN ILLINOIS RAILROAD** • *The Chicago Line*

*A preview of one of the magnificent new cars now scheduled for construction to provide superior, high-speed passenger service on the C & E I.*

*Illustration reproduced by courtesy of Pullman-Standard Car Manufacturing Company*

The editor's section of news and comment:

# Otis & Co. Offers to Buy Pullman Co.

THE vast Pullman sleeping car business may continue to operate as a separate company after all. For over two years Pullman, Incorporated, parent company of the Pullman group, has been under federal court order to dispose of its sleeping car business in order to separate it from Pullman-Standard Car Manufacturing Company. It has looked as if the only possible buyer was the railroad industry as a whole, but the railroads did not show much enthusiasm for taking over the sleeping car business on a share basis as they did Railway Express. Most railroad men feel that for efficient operation and good service the sleeping cars are best operated by an independent national company free to use the cars as a pool and to make competitive contracts with the various railroad companies, just the same as the business has been operated by Pullman.

Anyway the offer of Pullman to sell the physical assets of its sleeping car business to the railroads for about $75 million has been dangling in air, and only recently the court extended the time limit, recognizing that "it is not as easy to sell a sleeping car business as to stand on the corner and sell a package of cigarettes." Just last month the federal court in Philadelphia received the first offer to buy Pullman, from Otis & Co., investment bankers of Cleveland, in association with Robert R. Young, chairman of Chesapeake & Ohio, and Allan P. Kirby, president of Alleghany Corp. The price was the same $75 million for which Pullman had offered to sell the business to the railroads, and the group further committed itself to investing another $500 million as fast as possible in completely modernizing the Pullman rolling stock with the "most modern fleet of sleeping cars and observation cars that competitive engineering brains and manufacturing facilities can produce."

The offering price is divided thus: $20 million for the fleet of 6250 fully depreciated heavy weight cars, averaging over 25 years of age; $35 million for some 600 recently built lightweight cars, most of which are used on New York Central and Pennsylvania; $5 million for shops, laundries, and other buildings and equipment; $15 million for working capital including supplies.

The Otis proposal to the court promises improvements not only in equipment, but in routings and merchandising of sleeping car service to such an extent as to promote an undeveloped market for rail passenger travel. In the development of this market the organization of a nationwide network of agencies, promotion by national advertising, and experimentation in supplying equipment for the new demand will go hand in hand. The offer lays much stress upon the necessity for through transcontinental routing of sleeping cars in order to effectively compete with the air lines, and promises cars through the Chicago, St. Louis, and New Orleans gateways. This recalls the aggressive C&O statement last spring that through transcontinental train service would be needed in the postwar era and that the road was exploring methods for putting such service into effect, presumably via the St. Louis gateway.

The necessity of prompt action by the court is emphasized in the Otis proposal. Competitors of the railroads have their postwar plans all made, but because of the "death sentence" hanging over the Pullman Company both Pullman employees, the public and the railroads have been in a state of suspense as to the future of sleeping car transportation. The demands of the war have made older the already old fleet of heavyweight sleeping cars, and only some 10 per cent of the cars in operation even approach the style and comfort made possible by technological advances. Yet because of the uncertainties of Pullman's position very few new orders have been placed and the railroads are today without adequate means to meet the greatest competitive race for first class passenger traffic.

Otis & Co. promises to use all possible speed to put modernization plans into effect immediately. It also promises that while changes are in progress it will furnish c tinuous service to the railroads under present contracts and will continue employment of the present Pullman Company staff. The Otis group has had wide experience in railroad financing. With Halsey, Stuart & Co., it was largely responsible in bringing about compulsory competitive bidding for new railroad bonds. In the last 3½ years the Otis-Halsey group has purchased more than $100 million in equipment trust certificates at competitive bidding, approximately 50 per cent of the total issue of such securities during this period.

The attorneys for Otis & Co. in this petition are Thurman Arnold, formerly in charge of the anti-trust bureau of the Department of Justice, and Arne C. Wiprud, formerly associated with the Department of Justice. While with the government Mr. Arnold was in charge of the anti-trust prosecution of Pullman, Incorporated, which resulted in the order that the sleeping car properties must be sold. Mr. Wiprud is author of a book, "Justice in Transportation," which reflects Anti-Trust Division views to the effect that the railroads violate anti-trust laws when they make uniform rates by conference under Interstate Commerce Commission regulation.

The Otis offer was hardly made when W. F. Rockwell of New York stated that four companies with


**Trains**

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ANNUAL SUBSCRIPTION, DIRECT BY MAIL, $2.50 in U. S. A., Central, and South America; $3.00 elsewhere.

Entered as second-class matter Oct. 11, 1940, at the post-office at Milwaukee, Wis., under the Act of March 3, 1879.



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PUBLISHED MONTHLY BY KALMBACH PUBLISHING CO.
1027 N. 7th St. Milwaukee 3, Wis., U. S. A.

Dana D. Goodwin, 356 Main St., Fitchburg, Mass.

**The Boston & Maine has sold 17 of its 2-8-4's, the distinctive looking Berkshires with the Coffin feedwater heaters mounted outside the smokebox front. Nos. 4001, 4004, 4008, and 4011 went to the Santa Fe and were repainted and renumbered Santa Fe 4193, 4194, 4195, and 4196 before shipping west. The other 13 were sold to Southern Pacific, its first locomotives of this wheel arrangement. This leaves B&M with eight Berkshires, which it would also have sold if the war had not ended. Above is a B&M Diesel pulling eight Berkshires on their way west. Santa Fe 4195 and 4196 went under their own power.**

which he is associated may try to purchase the sleeping car operations of Pullman, Incorporated. These companies are Timken-Detroit Axle Co. and the Hupp Motor Car Corp., both of Detroit, the Standard Steel Spring Co. of Coraopolis, Pa., and the Pittsburgh Equitable Meter Co. of Pittsburgh. Mr. Rockwell says the group has ample funds for the purchase.

### C&O Lines to Consolidate

Robert R. Young had a busy month. Not only did Otis & Co., with which he is affiliated, make its spectacular bid for the Pullman Company, but Chesapeake & Ohio Railway, of which he is chairman, made public a plan for integrating its family of four railroads into a new system aggregating 7200 miles of road, third largest mileage in eastern territory and representing a $900 millon net investment in railroad property.

The component lines of the proposed unified system are C&O, Nickel Plate, Pere Marquette, and Wheeling & Lake Erie (see map on page 40). The C&O board has already voted approval of merger and the boards of the other three roads are expected to act shortly. Then I.C.C. approval is needed, but by allowing Alleghany Corporation to continue its control of this family of railroads the I.C.C. has already indicated that it will likely approve a merger.

The proposal contemplates a physical unification of all of the properties, rights, franchises, and assets of the several companies so as to make possible economies in operation, maintenance, general administration and debt service and enable the unified company to compete more effectively with the larger systems in the same territory. Improved service to the public will be possible by operation over the shortest and most direct routes made up of combinations of present lines.

Whether to merge or consolidate has not yet been decided. If the plan is carried out through a merger the present C&O Railway Company will continue, and will take over the other three companies, but if it is decided to consolidate a new company will be formed, C&O Railroad Company, to take over all four existing companies.

### New Chicago-Florida Trains

New streamlined Chicago-Florida trains are planned by the Pennsylvania, Chicago & Eastern Illinois and the Illinois Central. These are the roads which now alternate with their every third day coach streamliners so as to provide a daily service, and the same schedule will be worked out with the new trains, which will be both coach and Pullman. The trains will be 14 cars each, will be powered by 4000 horsepower Diesel-electric locomotives and will run on a 29-hour schedule. The originating lines will place the orders for equipment, but ownership will also be shared by southern roads which share in the mileage, L&N, NC&StL, ACL, FEC, and CofG.

### NYC's Atom Locomotive

The New York Central has made no official statement on the atomic power locomotive which press dispatches reported was under construction for the road, and Ralph Lucas, chief engineer of U. S. Industrial Research & Development Co. of Elmira, N. Y., who was quoted in the original story, later stated that many details remained to be worked out and that a little time would be necessary before results could be disclosed or before the application of atomic power to motive power use could be discussed.

The original interview, in case you missed it, stated that the NYC had furnished a locomotive to the Elmira company and that it was being rebuilt to incorporate a radical new type of power plant by

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## PASSENGER CARS ON ORDER AS OF AUGUST 1

| | | | |
|---|---|---|---|
| Alton | 15 | Coach | American Car & Fdy. |
| Atchison, Topeka & Santa Fe | 25 | Postal | American Car & Fdy. |
| | 5 | Postal | Budd |
| | 16 | Coach | Budd |
| | 6 | Club-Lounge | Budd |
| | 16 | Dining | Budd |
| | 46 | Coach | Pullman-Standard |
| | 3 | Bag.-Exp. | Pullman-Standard |
| | 3 | Club-Lounge | Pullman-Standard |
| | 49 | Sleeping | Pullman-Standard |
| Atlantic Coast Line | 30 | Coach | Budd |
| | 3 | Coach Comb. | Budd |
| | 6 | Dining | Budd |
| Bangor & Aroostock | 1 | Bag.-Exp. | American Car & Fdy. |
| Boston & Maine | 50 | Coach | Pullman-Standard |
| Chesapeake & Ohio | 30 | * | Budd |
| Central of Georgia | 6 | Bag.-Exp. | American Car & Fdy. |
| | 2 | Postal | American Car & Fdy. |
| | 8 | Coach | American Car & Fdy. |
| | 2 | Coach Comb. | American Car & Fdy. |
| | 2 | Coach | Budd |
| | 1 | Coach Comb. | Budd |
| | 1 | Dining | Budd |
| Chicago & Eastern Illinois | 8 | Coach | Pullman-Standard |
| | 2 | Coach Comb. | Pullman-Standard |
| | 1 | Dining | Pullman-Standard |
| Chicago & Northwestern | 20 | Coach | Pullman-Standard |
| Chicago, Rock Island & Pacific | 8 | Sleeping | Pullman-Standard |
| | 4 | Dining | Pullman-Standard |
| | 3 | Bag.-Exp. | Pullman-Standard |
| | 3 | Postal | Pullman-Standard |
| | 3 | * | Pullman-Standard |
| | 27 | Coach | Pullman-Standard |
| | 5 | Club-Lounge | Pullman-Standard |
| Florida East Coast | 11 | Coach | Budd |
| | 3 | Coach Comb. | Budd |
| | 6 | Dining | Budd |
| Great Northern | 25 | Sleeping | Pullman-Standard |
| | 20 | Coach | Pullman-Standard |
| | 10 | Dining | Pullman-Standard |
| | 5 | Postal | Pullman-Standard |
| | 1 | * | Pullman-Standard |
| Illinois Terminal | 8 | M. U. Coach | St. Louis Car |
| Long Island | 10 | Coach | Company Shops |
| Louisville & Nashville | 20 | Coach | American Car & Fdy. |
| | 8 | Dining | American Car & Fdy. |
| Minneapolis & St. Louis | 6 | Coach | Budd |
| Missouri Pacific | 5 | Bag.-Exp. | American Car & Fdy. |
| | 8 | Postal | American Car & Fdy. |
| | 9 | * | American Car & Fdy. |
| | 21 | Coach | American Car & Fdy. |
| | 10 | Dining | American Car & Fdy. |
| | 6 | Coach | Budd |
| | 28 | Sleeping | Pullman-Standard |
| New York Central | 20 | Coach Comb. | American Car & Fdy. |
| | 90 | Coach | Budd |
| | 4 | Coach Comb. | Budd |
| | 2 | Bag.-Exp. | Budd |
| | 31 | Dining | Budd |
| | 153 | Coach | Pullman-Standard |
| New York, Chicago & St. Louis | 5 | Bag.-Exp. | American Car & Fdy. |
| Northern Pacific | 36 | Coach | Pullman-Standard |
| Pennsylvania | 10 | Coach | Budd |
| | 65 | Coach | Company Shops |
| | 5 | Bag.-Exp. | Company Shops |
| | 5 | Club-Lounge | Company Shops |
| | 15 | Dining | Company Shops |
| Pere Marquette | 8 | Coach Comb. | Pullman-Standard |
| | 2 | Bag.-Exp. | Pullman-Standard |
| | 2 | Dining | Pullman-Standard |
| | 2 | Postal | Pullman-Standard |
| Richmond, Fredericksburg & Potomac | 8 | Coach | Budd |
| Seaboard Air Line | 12 | Coach | Budd |
| | 3 | Bag.-Exp. | Budd |
| | 15 | Dining | Budd |
| Texas & Pacific | 19 | Sleeping | Pullman-Standard |
| Wabash | 1 | Bag.-Exp. | American Car & Fdy. |
| | 1 | Postal | American Car & Fdy. |
| | 2 | Coach | American Car & Fdy. |
| | 2 | Coach Comb. | American Car & Fdy. |
| | 1 | Dining | American Car & Fdy. |
| Western Pacific | 4 | Coach | Budd |
| Western of Alabama | 2 | Bag.-Exp. | American Car & Fdy. |
| Total | 1155 | | |

* Types Unknown

***Railway Age recently printed this tabular summary of all passenger car orders which had been placed up to August 1. It does not include orders specifically mentioned in this issue such as the new Burlington Zephyrs, Exposition Flyer, and Chicago-Florida trains. The total includes 749 coaches, 129 sleeping cars, 126 diners, 89 headend cars and 18 observation-lounge cars.***

which a 300 horsepower gas driven generator would produce current which would split mercury atoms in a small very high pressure chamber and thus operate a turbine which would be powerful enough to propel a complete train. The type of locomotive was mentioned in some newspapers as a 4-8-4, but a gas-electric locomotive would be much more suitable and likely.

### B&O's Detroit Terminal

The difficulties of trying to improve railroad service are illustrated by B&O's troubles in changing stations in Detroit. Because venerable Fort St. Union Station has short tracks B&O has to load its trains in two parts and then couple up after pulling out of the station. The run to Toledo over Pere Marquette is slightly longer than the NYC mileage. Also Detroit has grown in such a direction that the newer Michigan Central station is better located. So B&O decided to shift its Detroit service to the modern MC depot and run to Toledo over NYC trackage. Application to the I.C.C. was, it seemed, a mere routine.

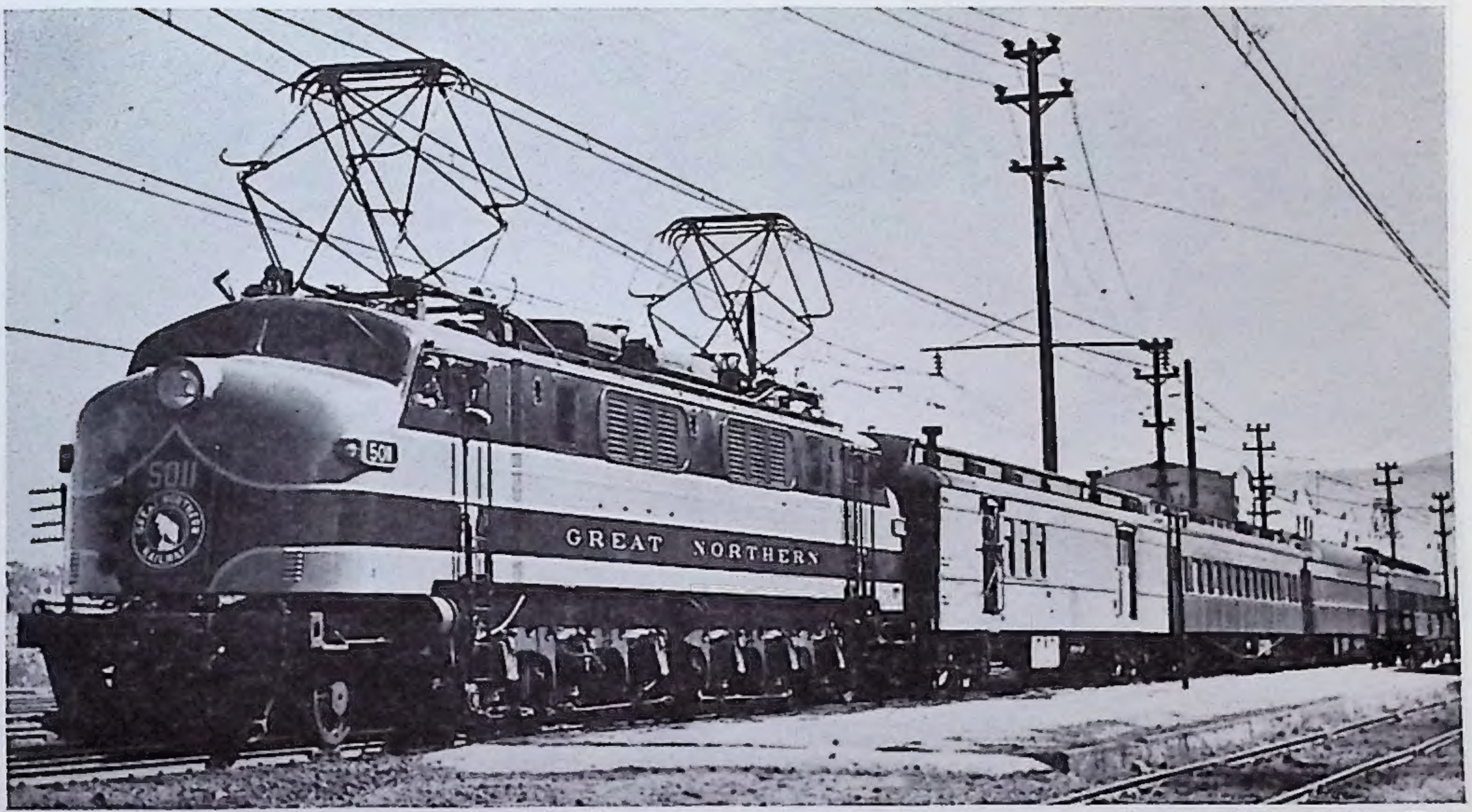
That was last spring. B&O still hopes to make the change, but it appears less likely now. The I.C.C. examiner has recommended that the application be denied. The opposition came not from the Fort St. Station or the Pere Marquette, but from the PM and MC brotherhoods. It is not that any less men will be used to run the trains under the new arrangement than under the old, but that it will be different men. The Pere Marquette trainmen who have handled B&O trains between Toledo and Detroit quite understandably do not wish to have these runs taken off their board. And the Michigan Central men object to B&O's proposal to use NYC tracks under a trackage rights agreement so that B&O crews would handle the trains into Detroit.

### New Vista Dome Zephyrs

Two new *Twin Zephyrs* for Chicago-Twin Cities service have been ordered by the Burlington, and all coaches and parlor cars will be equipped with the sensational new vista dome as described in last month's TRAINS. The new *Zephyrs* will be built by the Edward G. Budd Manufacturing Company and will consist of seven passenger cars each, including a combination buffet car, four coaches, a diner, and a parlor-lounge.

Five stainless steel baggage and mail cars, also ordered, will complete the streamlining of the road's Chicago-Omaha service, and an order has also been placed for a 12-car *Empire Builder*, identical with those ordered by the Great Northern. This train, to be built by Pullman-Standard, will be the Q's share of the transcontinental equipment for this run. Ten 4000 horsepower Diesel locomotives are also on order from Electro-Motive. This will give the Burlington enough Diesels to power practically all principal passenger trains.

The *Exposition Flyer* between Chicago and San Francisco will also be streamlined and the Burlington, Rio Grande, and Western




Stuart B. Hertz, Seattle, Wash.

**The Great Northern has streamlined electric locomotive No. 5011 for service on the new streamlined Empire Builder over the Cascade Mountains and through the Cascade Tunnel. Color scheme is the same as the road's freight Diesels.**

Pacific will jointly buy 60 new stainless steel cars for this service.

The experimental vista dome coach has so far traveled more than 15,000 miles in regular passenger service and has met with enthusiastic approval from thousands of travelers, all of whom have been given post card questionaires to fill out and return.

### Photo Restrictions Off

All military restrictions on railroad enthusiast photography of railroads have been lifted as of September 8, with the sole exception of areas which may still be designated by a defense commander as restricted or prohibited zones. Such zones, which are readily identified by their warning posters, are being eliminated as quickly as circumstances permit.

This does not, of course, give enthusiasts freedom to photograph wherever they please on railroad property, for individual railroad companies may still impose restrictions for safety and other reasons. Photography of railroads from highways, station platforms, and other public areas should now be possible without risk of arrest, and photography in private areas will often be permitted, as it was before the war, on specific request of railroad companies.

### Railroad for Sale

Wanna buy a railroad, complete with elegant western scenery? The Yosemite Valley Railroad, which abandoned service August 24, was bought at auction by A. R. Perlman, Denver engineer who owned 96 per cent of the railroad bonds. The 82-mile line, which leads up to the portal of the national park and over which through sleeping cars from Los Angeles and San Francisco were run before the war, will be junked unless Perlman can find a suitable purchase offer. The railroad offices are at Merced, Calif. Looks like here's a chance for one of the many groups who would like to try buying a short line and, through sheer enthusiasm, making it profitable.

### New Beebe Book

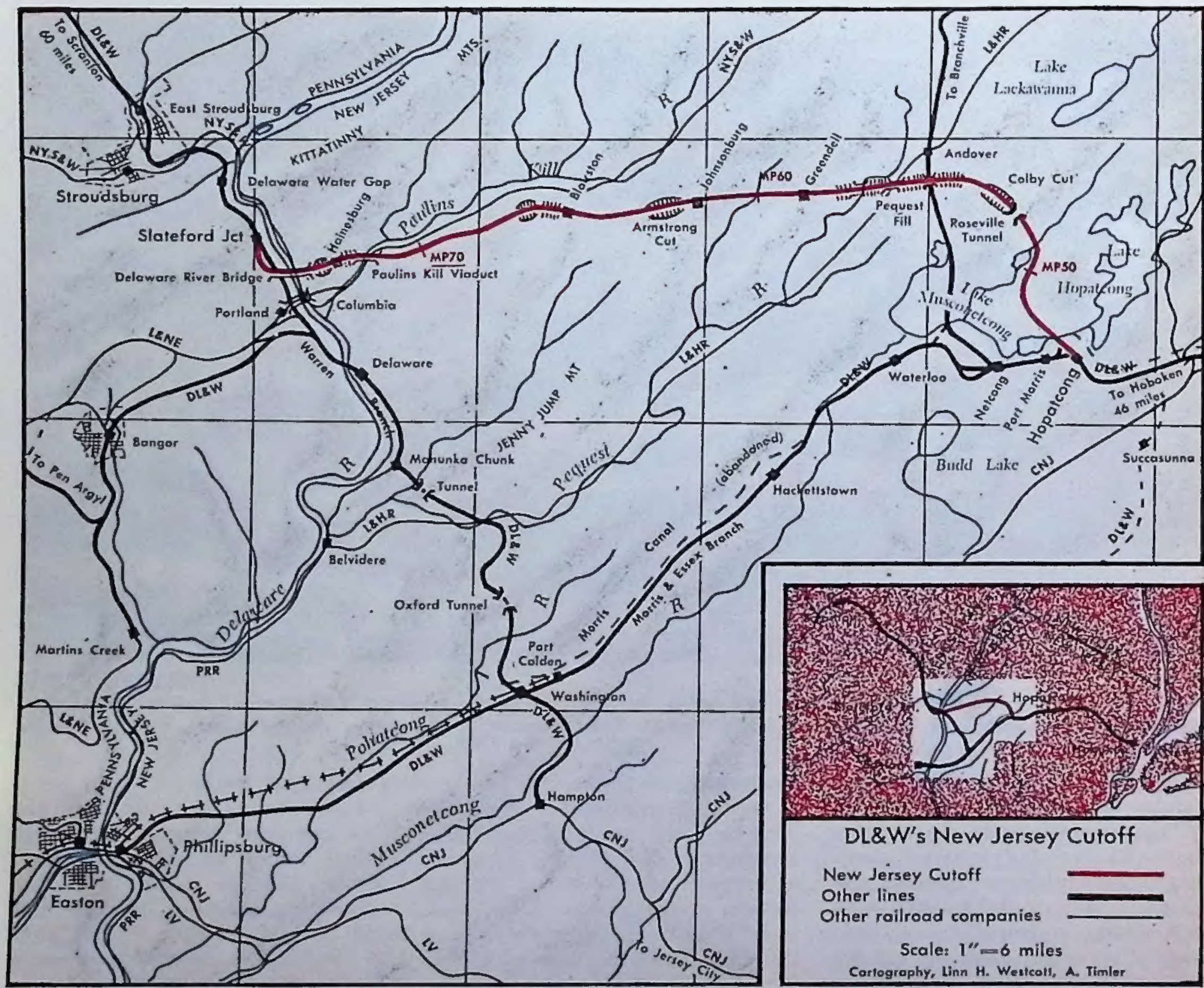
Walter Winchell reported Lucius Beebe in Reno, but not for the usual reason. The lowdown is that Beebe was getting photos of the Virginia & Truckee (see page 20, August TRAINS). They are part of the content for his latest railroad photo book, "Highball, a Pageant of Trains," which will be published about October 15. Price for the 236 page volume is $6, and it will include many new photos of little-known short line railroads as well as of present day railroading.

### Odds and Ends

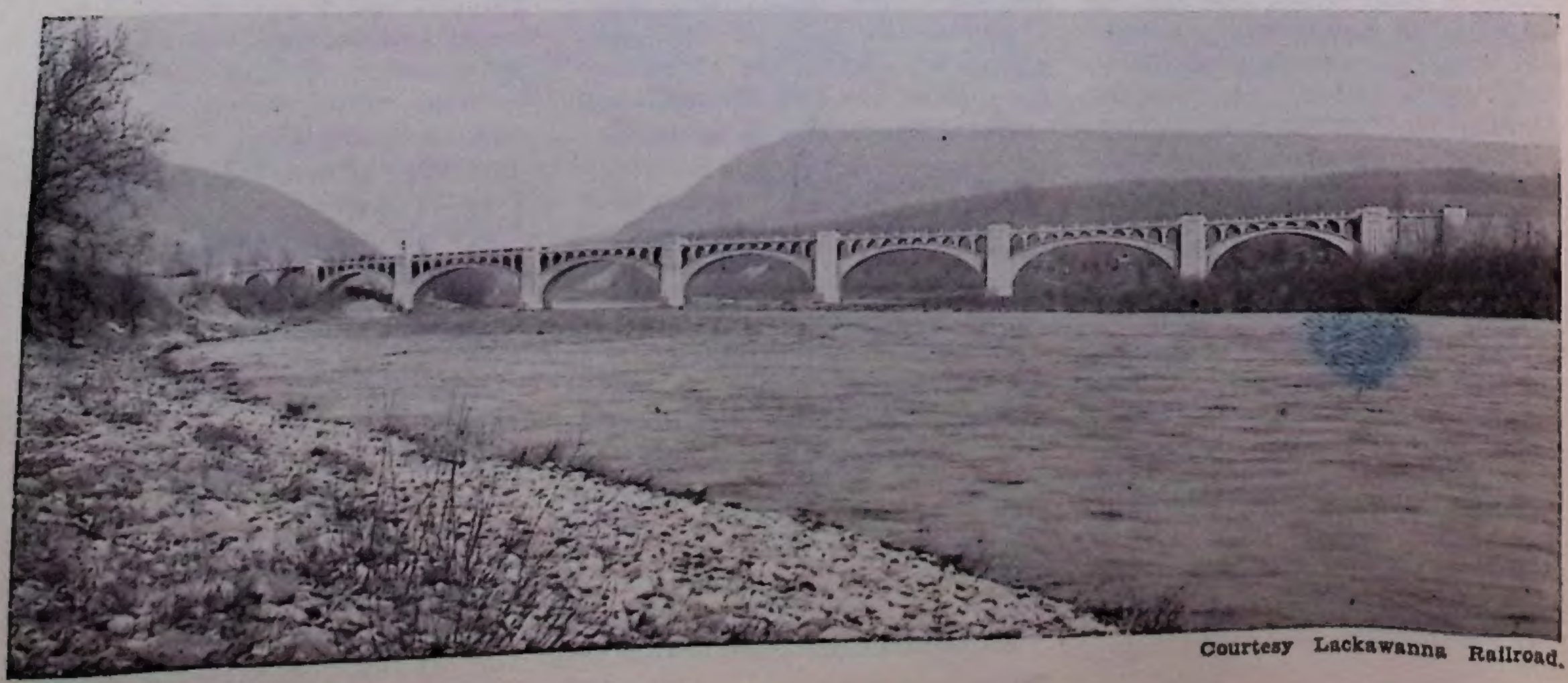
Gulf, Mobile & Ohio trains are now operating into the St. Louis Union Station instead of terminating in East St. Louis, with bus connection, as they did for the last several years. . . . As soon as the O.D.T. modified its extra train order to permit resort trains B&M put the *Moutaineer* back on to the White Mountains and C&NW reinstated its *Flambeau* to the Wisconsin north wods. . . . Usually when a train is once taken off the timetable it stays off, but not so on the Western Maryland. Trains 1 and 4 were removed between Cumberland and Elkins in accordance with O.D.T. order but were promptly restored when the order was modified. . . . Effective September 9 the O.D.T. five day limit on reservations was increased to 14 days. The ban on sleeping car runs of less than 450 miles remains.

Oregon Electric will rip out trolley wire and use Diesel-electric locomotives on its 100 odd miles of line between Portland and Eugene. The rails which once knew the ring of electric passenger trains with deluxe open platform observation cars and sleeping cars have been used only for freight since 1933.

A. C. Kalmbach.




Red line in map above is the route of DL&W's New Jersey Cutoff. The cutoff has a length of only 28 miles, a saving of 12 miles over the old line, and a grade that does not exceed half of one per cent. The 15 curves on the line have a total curvature of but slightly more than 360 degrees. Below: Looking northward toward the Delaware Water Gap, the old line of the Lackawanna and a state highway pass through the two arches at the extreme left of the Delaware River Viaduct. The 1450-foot structure was built at a cost of $600,000.



Courtesy Lackawanna Railroad.

# Lackawanna Cutoff

**DL&W's 11 million dollar improvement of 1911 remains super railroad by today's standards**

BY W. R. OSBORNE

*"It's time to go," said Phoebe Snow,*
*"And view the scenes I love to show.*
*Each mile you'll find a new delight,*
*Upon the Road of Anthracite."*

When that charming lady of spotless fame extends an invitation to view the scenes along the Lackawanna, one connot afford to miss the opportunity. She has many in mind, but none more interesting or spectacular than that monumental engineering work which spans the picturesque terrain of Northern New Jersey.

The Lackawanna's New Jersey Cutoff was made possible only by a vast expenditure of money sufficient to build the most perfect alignment that modern railroad engineering could devise. This was the first of two ambitious improvement programs to be carried out by the DL&W between 1908 and 1914. George Ray, now vice-president of operations and maintenance, was chief engineer in charge of the construction of the New Jersey Cutoff as well as the Clarks Summit-Hallstead Cutoff, and the suburban electrification program which was carried out some 20 years later.

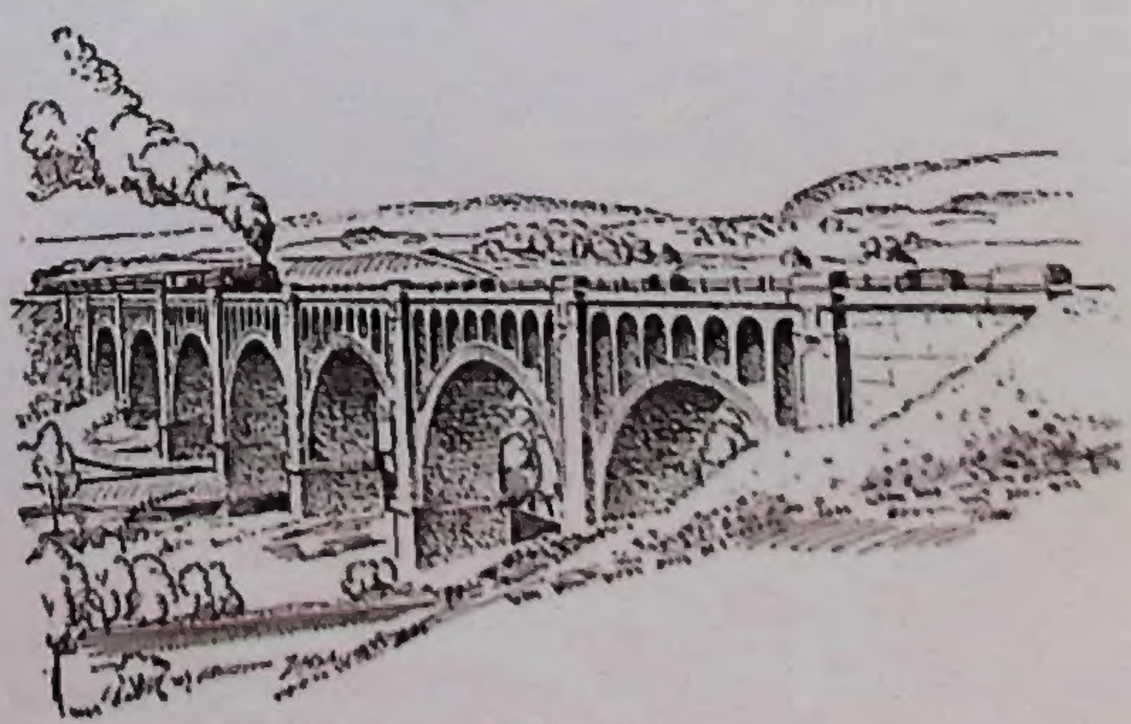
Outstanding at the time of its conception the cutoff is still one of the marvels of modern railroad construction. Despite its 34 years of existence, the line still boasts of two very beautiful railroad bridges and the world's largest railroad embankment.

Extending from the "top" of New Jersey, near Lake Hopatcong, to the Delaware River crossing not far from the famed "Water Gap," this double tracked steel trail cuts across the streams, hills and valleys with concrete arches of majestic beauty, mammoth carvings through solid rock and mighty fills of earth and boulders. Almost as straight as the crow flies, with no rail or highway crossings of any character at grade, this route plays a major part in making the Lackawanna "mile for mile, the most highly developed railroad in the world."

A brief review of early history and conditions on the Lackawanna will indicate the necessity for building this cutoff.

Anthracite came into commercial usage early in the 1800's, and transportation from the Pennsylvania coal fields to the Eastern seaboard was by river boats or barges on the canals which were built for that purpose. This system of transport was slow, and even impossible during severe winter weather. Early it became apparent that the railroads could best meet these shipping problems, and the Central of New Jersey, Lehigh Valley and Lackawanna were among the first roads to tap the northern limits of the coal fields. The Lackawanna was completed across the Pocono Mountains from Scranton, Pa., to the Delaware River in 1856.

The Warren Railroad, which had been constructed northward from Hampton, N. J., on the Central Railroad, made a junction with the Lackawanna on the Delaware River south of Water Gap and was acquired by it in 1857. The DL&W could now deliver coal from the Scranton area to the Central, and to the Morris Canal



Paulins Kill, looking toward the Gap.

Donald W. Furler, 65 Glen Ave., Glen Rock, N. J.

**An eastbound heavy freight emerges from Roseville Tunnel east of Andover, N. J. Much of the freight is anthracite, on its way from the coal fields to Atlantic costal ports.**

near Washington, for transshipment to coastal cities. At that time the Lackawanna was wide gauge, and the Central constructed a "third" rail to accomodate cars from its connection.

Meanwhile railroads were being laid westward from the Eastern seaports, and one of these, the Morris & Essex, was completed from Hoboken to Phillipsburg by way of Dover, Hackettstown and Washington in 1865. By this time the Lackawanna was one of the most powerful roads in the country, and in 1868 it leased this line which it crossed at Washington. This permitted uninterrupted train movements from the coal fields to Atlantic coastal ports and created the old main line, part of which is shortened by the cutoff.

From the Water Gap to Hopatcong the old line, still in use as an alternate route, is both tortuous and circuitous, following the lines of least resistance. It is nearly 40 miles long and has 57 curves totaling 13 miles in length, over which a train covers more than six full circles. The maximum grade is 1.08 per cent. The line has a total rise and fall of 248 feet, and there are two tunnels nearly a mile in length. It takes but little imagination to appreciate the difficulties of operating this stretch of railroad.

During the 30 years following the purchase of this line by the Lackawanna numerous alignment and grade changes were made. Some of these are still in evidence. However, it was finally decided that a major improvement was needed and surveys then began to determine if the route could be modernized. Exhaustive studies indicated that the cost to revamp the line would be prohibitive, in view of the fact that it could not be materially shortened. Additional engineering studies were made including a survey from a point near Delaware, N. J., to Waterloo, but such a line would still leave a severe climb from Waterloo to Hopatcong. The final decision was to build an entirely new and better line over the present route which provided the maximum operating efficiency in proportion to the cost. It was a radical departure from customary railroad practice. Striking across the drainage of the country this high line of great engineering magnitude affords not only an economical line for operating purposes, but also provides magnificient panoramic views that make it an attractive journey as well.

The Lackawanna Railroad of New Jersey, which was chartered to build the line, was given a green light by the management in the

W. R. Osborne, 216 W. State St., Trenton, N. J.

**Originally intended as an open cut, Roseville Tunnel still bears the scars of early excavations. This 1024-foot tunnel is the only one on the cutoff route.**

summer of 1908. Work began and for the next 3½ years the quiet valleys and hills of Warren and Sussex counties reverberated to man's assault upon the works of nature. Huge steam shovels chewed solid rock from the earth, and tiny dump car trains poured it into the valleys. Lofty concrete structures were poured to form two of the world's largest railroad bridges. In all a total of 73 reinforced concrete bridges, culverts and viaducts were built, establishing a record, since that material had seldom been employed in railroad construction previous to this time. Stations and signal towers likewise were built of concrete.

During the peak of construction more than 20 giant steam shovels were in operation, together with several standard gauge locomotives and nearly 50 narrow gauge engines, used in hauling the dump car trains. Railroad builders from all parts of the world were attracted to the project to view and study the ingenious methods employed on the viaducts and huge embankments. It was necessary to use various methods of filling the huge cuts. Wood trestles, which remained in the embankments after completion, were often used for dumping. In the suspended cable method, steel towers were erected on the high ground at each end of the fill with an aerial cable connecting them. "A" frames were advanced to the edge of the fill and dump cars backed on these for emptying.

The total excavation was equivalent to the

S. Kolatis, 323 W. 51 St., New York 19, N. Y.

Bound for Scranton and Buffalo, the Lackawanna Limited rolls through the Delaware Water Gap just after leaving the cutoff at Slateford Junction. Below: DL&W No. 2227, a 4-8-2 three cylinder locomotive, hauls 51 cars of the familiar Pennsylvania anthracite near Blairstown, N. J. The only station open to passenger business on the cutoff is a small concrete structure located at Blairstown.

Donald W. Furler.

No. 1619, a 4-8-4 (Lackawanna calls it the Pocono type), pulls a fast manifest just east of the Delaware River Bridge crossing. The 1600 series 4-8-4's haul heavy merchandise freight on fast schedules, and also are used at times on the Lackawanna Limited trains. They are very useful in passenger service on the heavy grades in Pennsylvania where they are capable of handling 12 cars over the mountains for which they were named.

digging of a canal 16 feet wide and eight feet deep for a distance of 550 miles! Much of the cutting was through solid rock, slate and granite. To pry it free from Mother Earth required a train load of dynamite. The enormous fills swallowed all of this excavated material, and required an additional amount equal to a 10 foot cut over a 760 acre area. The concrete structures contain enough reinforcing steel to build 15 miles of complete railroad track, and sufficient concrete to pave a modern express highway some 40 miles in length.

And what were the results of that decision made back in 1908?

The newer line has a length of only 28 miles, a grade that does not exceed half of one per cent. The total rise and fall is only 11 feet. With only 15 curves, having a total length of less than five miles, a train passing over the cutoff makes only slightly more than one complete circle of curvature.

The cutoff, like all railroad lines, is composed of a series of cuts and fills with an occasional bridge. But it differs from many. Everything seems to have been done on a grand scale. The cuts slash deep into every hill, with no compromise of grade. The immense fills soar high above the most gradual of valleys. The principal cuts have a total length of more than three miles, with the deepest exceeding the height of a 10 story building. The important fills correspond in height to the maximum cuts.

The first scheduled passenger train passed over this $11 million improvement on Christmas Eve, 1911. Today, all through trains between Hoboken and Scranton or Buffalo use this route. There are 10 regular passenger trains and an average of 19 freights of which 12 are symbol manifests. The maximum speed limit for the varnish jobs is 75 miles per hour, for the fast

W. R. Osborne.

manifests, 50 miles per hour. Passenger trains are generally powered with the 1100, 1400 or 1500 class locomotives; freight is wheeled by the 1600, 2100 or 2200 class engines.

The roadbed, typical of Lackawanna standards, is a trackman's dream. The rail is 130 pound resting on ties cushioned in crushed limestone ballast with the edges trimmed as straight as a ruler and with stones glistening in the sunlight like so many silver pebbles.

Passing sidings at Greendell, near Blairstown and at Hainesburg permit a smooth flow of traffic. Each has the capacity for an average length freight train, and at the location west of Blairstown eastbound and westbound sidings have been constructed on both sides of the main line, providing a four tracked line through this location.

At the Greendell and Blairstown passing tracks are modern steel water storage tanks with plugs for eastbound and westbound tracks.

Dispatching is by telephone. Automatic semaphore block signals of the lower quadrant type protect the line. Formerly on signal bridges, they are now located on masts. Color light signals are installed at the interlockings.

There's the green, time to go.

Swinging northward from the east end of Port Morris yard, 46 miles west of Hoboken, through the hills that separate lakes Musconetcong and Hopatcong, the tracks curve several times as if undecided about which direction to go. But not very far. Skirting the shore of Lake Lackawanna they disappear into the 1024-foot Roseville Tunnel, just west of Milepost 51. After reappearing in the impressive Colby cut, which in places is 119 feet deep, the line turns abruptly to the west, and thereafter heads in a beeline for its ultimate reunion with the old line at Slateford Junction, 21 miles away on the Delaware River.

As the ribbons of steel curve gracefully out of the cut they come into the Pequest Valley which they span on the world's largest railroad embankment. Extending from Milepost 52.5 to Milepost 56, this fill, averaging 75 feet in height with a maximum of 119 feet, offers a breathtaking panoramic view. Far below and to the north lies the village of Andover, famous for its early American iron furnaces. Near Andover the line crosses over the Lackawanna's Sussex branch, and at Milepost 55 passes over the single tracked freight line of the Lehigh & Hudson River Railroad.

Proceeding westward, the ghost station and tower at Greendell are passed. These, together with the station at Johnsonburg, have been closed. Beyond Johnsonburg Station the line

enters Armstrong Cut, biggest on the line, with a maximum depth of 104 feet and a length of nearly a mile. It required the removal of more than 850,000 cubic yards of material, enough to fill more than 21,000 average size gondolas, a train about 200 miles long.

The only station open to passenger business is Blairstown, the home of a well known school for boys. It sits just east of Milepost 66 and emerges onto Paulins Kill Viaduct, east of Milepost 71. This massive structure spans the Paulins Kill stream and the tracks of the New York Susquehanna & Western Railroad, used jointly with the Lehigh & New England. The viaduct has seven graceful arches with a total length of 1100 feet and is 117 feet above the floor of the valley. Nearby is the town of Hainesburg.

This massive structure spans the Paulins Kill stream and the tracks of the New York Susquehanna & Western Railroad, used jointly with the Lehigh & New England. The viaduct has seven graceful arches with a total length of 1100 feet and is 117 feet above the floor of the valley. Nearby is the town of Hainesburg.

Crossing another high fill and passing through a deep cut on a curve, the road emerges into the Delaware River Valley (Milepost 73), passing over the river, a state highway and the old Lackawanna line by a series of nine arches totaling 1450 feet. This structure cost upwards of $600,000 and contains over 50,000 cubic yards of concrete and more than 600 tons of reinforcing steel. It is 64 feet above water level.

At the west end of the bridge the line curves to the north over the sharpest curve on the cutoff. It parallels the old line a short distance, and at Milepost 74.5 merges with it at Slateford Junction tower.

This is the end of the cutoff, a part of the Morris & Essex Division and an important link in the Lackawanna system. It is one of a number of large scale improvements such as the Clark's Summit-Hallstead Cutoff, electrification and grade elimination in the congested areas, and more recently, the track realignment program through the Pocono Mountains.

These changes have not marred the beauty of the country through which they pass. Rather the scenes are often made more impressive. The Lackawanna still remains "The Route of Scenic Charm."

W. R. Osborne.

No. 2208 drags a westbound freight over the old line near Netcong, N. J. The old line, still sometimes used as an alternate route and for connections, laboriously follows the line of least resistance over 40 miles of track, 57 curves totaling 13 miles, and a maximum grade of 1.08 per cent.

Left, W. R. Osborne; top, courtesy Lackawanna Railroad.

Looking towards the Blairstown station, this typical track scene was taken from one of the many overhead highway bridges. In the suspended cable method of placing large fills, steel towers were erected at each end of the proposed fill and dump cars emptied from the suspended track.

W. R. Osborne.

A train of empty coal cars heads west after crossing Paulins Kill Viaduct near Hainesburg, N. J. The viaduct, largest structure of its kind in the world at the time it was built, passes over tracks used jointly by the New York Susquehanna & Western Railroad and the Lehigh & New England.

# "I'll Even Take an Upper"

## The reservation bureau with its stacks of diagram cards is at other end of ticket man's phone

BY E. R. WILL

On an average of once every 25 seconds the Milwaukee Road reservation bureau in the Chicago Union Station receives a telephone call from someone who wants to be somewhere else and would like a sleeping car reservation or a parlor car seat for the trip. That totals about 2500 calls a day. Add 850 daily telegrams and you get a fair idea of what goes on in the reservation bureau. The size of the job it is doing reflects very clearly the 150 per cent increase in the passenger business the railroad did in 1944 as compared with 1940.

Like any other phase of a large railroad's operation, the work of the reservation bureau is probably understood only vaguely even by employees whose daily round of routine sometimes takes them inside that beehive of activity. Perhaps you would like to go in and have a quick look at the precedure involved in making one of those things which the press, the radio and the man in the club car have been joking, bickering, and developing high blood pressure about for the last few years.

When a call comes in, either from a prospective passenger or from a ticket seller in one of the road's Chicago offices or that of a foreign line, the passenger's name is inserted in the space (if the space is available) on the diagram for the train he intends to use. If it is a ticket seller who is calling and he is issuing a ticket at the time, its number is inserted. The clerk in the reservation bureau must be familiar with 50 daily diagrams of standard and tourist sleeping cars on Milwaukee Road trains which leave Chicago Union Station.

The diagram is a rough sketch of a car and each stack has cards for 14 days in advance. The numbers assigned to cars on any given train remain the same from day to day. When space is held in the name of a passenger, he is informed that a ticket number must be inserted on the diagram a certain number of days ahead of scheduled train departure — in other words, he must go to a ticket selling agency and buy a ticket, at which time the ticket seller will contact the reservation bureau and have the ticket number inserted on the diagram. If this is not done before the deadline, the space has to be released for resale. This is a precaution taken by all railroads to prevent the possibility of trains pulling out half empty while would-be customers clamber at the gate.

### America's Short Lines

SLOW TRAIN TO YESTERDAY, by Archie Robertson. 189 pages, 5" x 8". $3. Published by Houghton Mifflin Co., 2 Park St., Boston, Mass.

A more loyal friend of the backwoods railroads than Archie Robertson cannot be found. It wasn't always that way, but after one innoculation of a rear platform ride on a three times a week train Archie couldn't forget about America's forgotten rural short lines. His enthusiasm for the unusual of these railroads made this book inevitable. Just as inevitable is the reading of "Slow Train to Yesterday," an enjoyable process for you, your brother or a bed anchored friend. It is one railroad book you'll appreciate even if you are not ordinarily a rail fan. Archie's experiences on many of the short lines of this country take you over such roads as the East Tennessee & Western North Carolina, the Stewartstown, the Ma & Pa, some Colorado lines, and many more of the same feather. Also included are the trolley lines and some material about models that reads as you've never read before.

And since a review in the American tradition must include at least one derogatory remark: This book has a glaring fault, it comes to an end.

The same procedure is followed in making reservations for passengers who will board the train at points other than Chicago, except that an endorsement must be made on the diagram to hold the space.

There are three exceptions to the above routine:

Certain units of space are set aside for the other main offices, including Milwaukee, the Twin Cities, Butte, Mont., and off-line offices in New York and Washington, D. C. On the day before train departure, the bureau either receives ticket numbers from New York and Washington for insertion in the diagram, or the space is released. The terminal city ticket offices in Seattle, Omaha, and Kansas City handle reservations in the opposite direction.

A given number of bedrooms and drawing rooms are set aside in the main trains for moving wounded service men. If it is determined, shortly before train time, that no wounded men are to occupy the space, it is sold.

The government reservation bureaus which have been established by the various railway associations to handle reservations for government and military personnel are assigned certain units also. These bureaus release unassigned space to civilian passengers five hours before train departure.

When it was discovered in the early days of the war that the demand exceeded the capacity of the space, the Pullman Company, with the concurrence of various carriers, adopted a code system and placed a ban on refunding the amount paid for sleeping car tickets if space was not released prior to train departure. This rule, of course, cannot be adhered to when late connecting trains cause a missed connection.

Although the bulk of the bureau's work consists of making reservations on its own line, it also acts as an intermediate agent in obtaining space on foreign lines for many other offices. For this purpose, vacuum-activated tube service is maintained between the bureaus of the carriers initating out of Chicago.

The reservation bureau is one of the first contacts patrons have with a railroad company. Consequently, it plays a big part in the road's public relations program. It takes a good deal of common sense and forbearance to pass lightly over some of the situations which arise.

For example, a passenger recently requested a parlor seat on the *Hiawatha* to Minneapolis, then asked the clerk whether it would be possible for her to stop over for a day or two in Milwaukee and then occupy the same seat to her destination. Probably the clerk was tempted, in a fit of despair, to advise the passenger that they could remove the seat from the car and store it in the Milwaukee depot until time for it to be used again. But she didn't.

These people in the reservation bureau, who labor behind the scenes, should not be forgotten when the bouquets are handed out for the near-miracles which the railroads of the country have done in this time of crisis.

# The Flying

BY ARTHUR L. STEAD

EVERY morning, at 10 o'clock precisely, there steams proudly out of King's Cross Station, London, the daddy of all the world's crack long-distance passenger trains, the *Flying Scotsman* of the London & North Eastern Railway. As often as not, the departure is eagerly watched by a little group of U. S. railway fans in uniform, always conspicuous in these days at every big British railroad depot. Flying bombs hold no terrors for the *Flying Scotsman,* nor did any of the enemy's air attacks ever succeed in rubbing this flyer from the timetables. More than once, the *Flying Scotsman* ran through Nazi bombing and machine gunning. For a short period, at the height of the blitzkrieg, it was a physical impossibility for the train to make King's Cross its London home but, nothing daunted, a suburban depot just outside the metropolis was utilized and there, on the edge of war's inferno, the train crew, station employees and signal operators saw to it that the *Flying Scotsman* never let the public down.

Apart from its honor of possessing the longest continuous record for an unaltered departure time of any fast train in the world, the story of the *Flying Scotsman* is the story of all railroad passenger service in the last eight decades. The schedule has been gradually speeded up to meet altered conditions; the track over which it runs has been regularly improved by the introduction of heavier steel and better signaling; new connections have been afforded along the entire route; the locomotives have gradually

King's Cross Station, one of London's largest terminals and the great jumping off point for Scotland, is pictured below as it appeared before the war with the Flying Scotsman drawn up for loading. At right, the Flying Scotsman overshadows its 1888 counterpart which took place in the great race to Scotland more than half a century ago. The locomotive is a Stirling Single borrowed from the York Museum for a jubilee run in 1938.

# Scotsman

grown in size and power; its passenger cars have by degrees changed from crude six-wheelers to luxurious modern accomodations.

The *Flying Scotsman* steams right through Britain from end to end, hugging the eastern seaboard for a considerable stretch of route in the north. On the introduction of the service in 1862, the run from London to Edinburgh was accomplished in 10½ hours. At the outbreak of the recent war, the summer timetables allowed seven hours for the 392¾ mile trip, this being performed nonstop through the aid of locomotives equipped with corridor tenders, permitting of change of engine crews enroute. In the winter of 1938-1939, the trip occupied 7¼ hours. Under wartime conditions the journey between the English and Scottish capitals occupied eight hours 55 minutes, this with heavy trains weighing as much as 650 tons, increased station duties en route, and with the many obstacles arising out of wartime working and peculiar hazards.

In the present century the *Flying Scotsman*

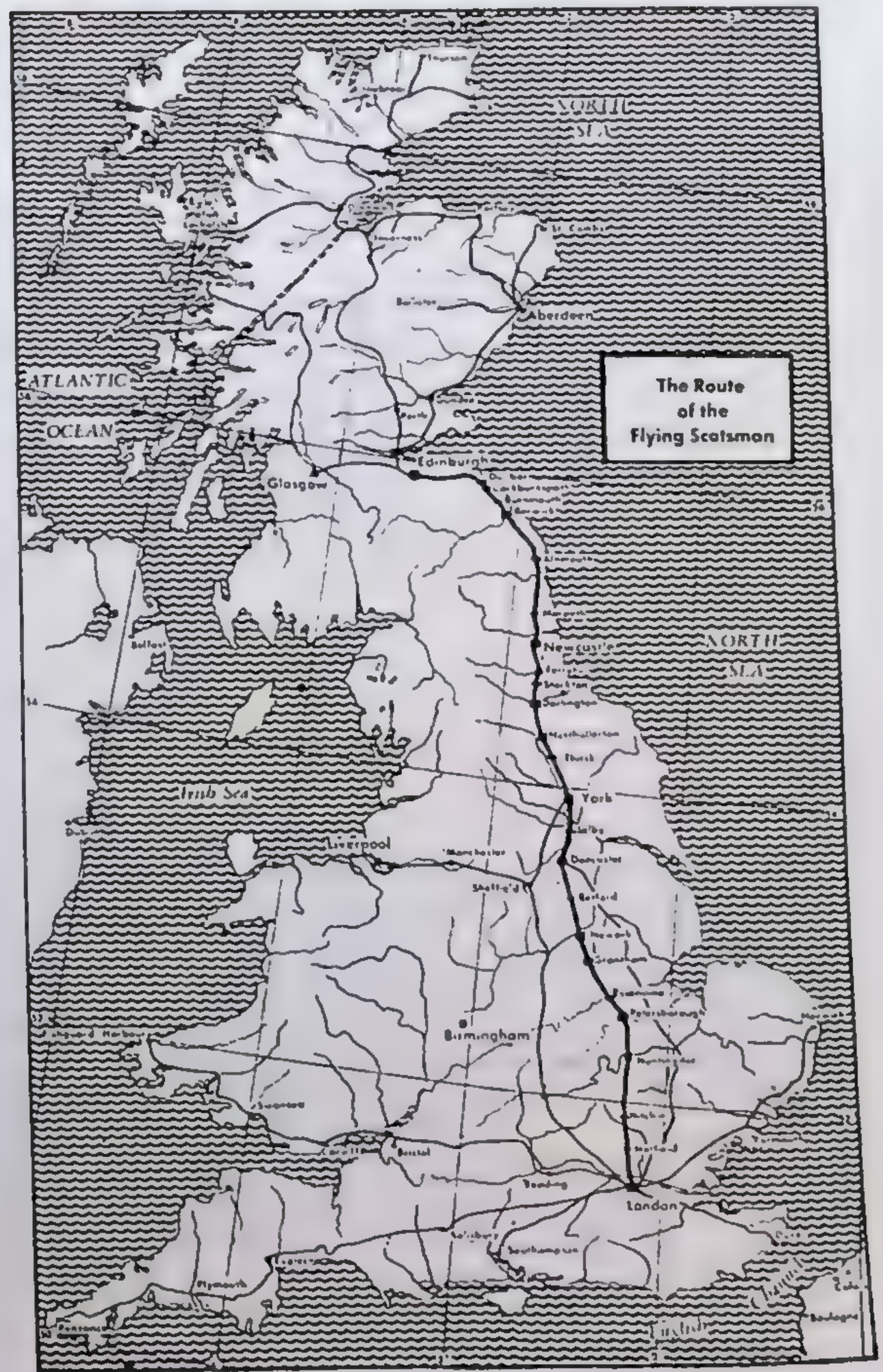
Only a comparatively small number of British locomotives were bombed during the war, but L&NE's Sir Ralph Wedgewood, a Pacific, was one of the unlucky ones to be completely demolished. Below: At the height of the blitzkrieg King's Cross Station looked like this. During repairs, the Flying Scotsman used a London suburban station as its terminal. Opposite page: Stately Royal River Bridge carries the Flying Scotsman across the River Tweed.

has never attempted to attain high speeds at the sacrifice of loading. Actually, up to the outbreak of war, a relatively lightweight flyer, the *Coronation* streamlined train, made the through London-Edinburgh run over the same road in exactly six hours. In contrast to the heavy *Flying Scotsman,* the *Coronation* weighed only 312 tons. Although travelers who regarded speed as of prime importance favored the faster service, the bulk of passengers by day between England and Scotland looked upon the *Flying Scotsman* as their standby.

It was in June, 1862, that the day *Scotch Express* from King's Cross Station, London, which had for some 10 years been scheduled to leave the Thames-side metropolis at various times between 9 and 9:30 a.m., was permanently allotted the 10 a.m. departure, and received its baptismal name of the *Flying Scotsman.* Since then, the daily trip from London to Edinburgh has regularly been begun at 10 a.m. precisely. In 1872 the 10½ hour schedule was reduced to 9½ hours and cut again in 1876 to nine hours. At the outset, the *Flying Scotsman* carried first and second class passengers only. Then, towards the close of 1887, third class accomodations were added to the train. In 1891, second class accomodation was withdrawn on the *Flying Scotsman,* and ever since the train has been composed of first and third class cars only.

In July, 1888, the thrilling announcement was made that in future the *Flying Scotsman* would make the London-Edinburgh run in 8½ hours. Historic racing followed between the Great Northern, North Eastern and North British Railways, then forming the East Coast Route to Scotland, and now embraced in the London and North Eastern group; and the London & North Western and Caledonian Railways, then forming the competitive West Coast Route to Scotland, and today embraced within the London, Midland & Scottish consolidation. The fastest run made in these historic races was one of seven hours 26¾ minutes, accomplished by the East Coast lines out of King's Cross Station, London. For a short period after this, the King's Cross-Edinburgh timing stood at 7¾ hours, but it soon settled down once more to 8½ hours.

The route of the *Flying Scotsman* crosses that of the oldest public railway in the world, George Stephenson's Stockton & Darlington railway, opened for traffic on September 27, 1825. *Locomotion No.* 1, the first engine to be employed for passenger working on the world's pioneer railway, would be regarded as an erratic, clanking and cumbersome conglomeration of old iron, were it not for its unique historic importance. But this old engine serves in no small fashion to accentuate the tremendous development in locomotives



which more than a century of railroad operation has produced.

An extraordinary mixture of locomotives of all shapes and sizes was got together by the Great Northern Railway of England during its early days. At the outset, the *Flying Scotsman* was drawn out of King's Cross by a single engine with six-foot six-inch driving wheels and weighing without tender 27¾ tons. In 1870, a new type of machine called the Stirling Single began to draw the *Flying Scotsman* and these locomotives continued on the job almost up to the close of last century. The Stirling Singles were unique in having 97½ inch driving wheels, and they had been described as "one of the most graceful designs that ever ran in Britain."

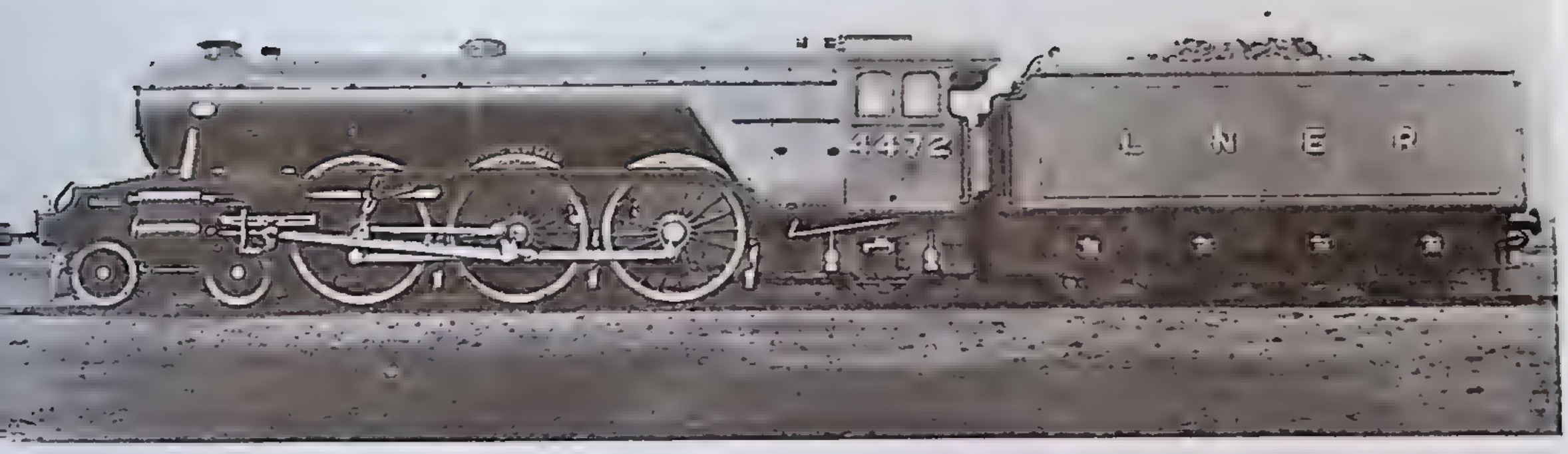
In 1898, entirely new ground was broken by the introduction of No. 990, the first Atlantic machine seen in Britain, and by degrees Atlantics became general in the Anglo-Scottish services. Then, in 1922, came the entry of the Pacific machine onto the stage. No. 1470 was the first successful Pacific turned out in Britain, and its designer was H. N. Gresley, then in charge of the Great Northern locomotive branch. The Pacific at once became standard for hauling the *Flying Scotsman* and has been used ever since.

The streamlined Pacifics of wartime were painted an unrelieved black, partly to render them less conspicuous from the air and partly as a measure of paint economy. A feature of many of these engines is the corridor tender, a passage five feet high and 18 inches wide running from the locomotive cab to the rear of the machine, and with vestibule giving direct connection between the cab and the leading car of the train. This enables locomotive crews to be changed enroute, without stopping, and was a feature of which regular use was made up to September, 1939.

Early passenger cars between London and Edinburgh were of the six-wheeled type. They were divided into four first class and five second and third class compartments, and each car weighed about 14 tons. By degrees, improvements were effected. Gas lighting took the place of oil; compartment walls were extended to the roof instead of being open above the level of passengers' necks; baggage racks were provided and lavatories installed. For long after the introduction of the first British dining cars, the old practice was adhered to of halting the *Flying Scotsman* for refreshments at York, roughly midway between London and Edinburgh, but eventually dining cars were included in the makeup of the train. In 1914 came the first British all-steel kitchen car, and about 10 years later really modern sumptuous diners were introduced. Dining and other special cars were withdrawn from all British trains during the war.

The *Flying Scotsman* train of normal times was a truly handsome piece of equipment. Beauty of line was added to the exterior of the train by designing the car ends in the shape of a bow, which brought the ends of the adjoining cars very close together, and with the downward slope of the roofs resulted in a handsome streamlined effect. The makeup of the train was as follows: First came a car with a baggage section in front and three or four third class passenger compartments behind, reached from a side corridor. The leading compartment was reserved in the summer months for the use of the locomotive crews. From London to a point just beyond York the spare engineer and firemen travelled as passengers, passing from the car to the locomotive when the time came for them to relieve the men on the cab, who then returned through the corri-

The Edinburgh-Aberdeen section of the Flying Scotsman is hauled over Scottish mountain grades by three-cylinder 2-8-2's, such as the Cock o' North, now being rebuilt into Pacifics. Opposite page, top: The Flying Scotsman, a Pacific named after the train it was designed for, followed the Atlantics into service. Bottom: Today powerful super-Pacifics take the train from London to Edinburgh. Locomotive No. 4901, Sir Charles Newton, was named after the present L&NE president.



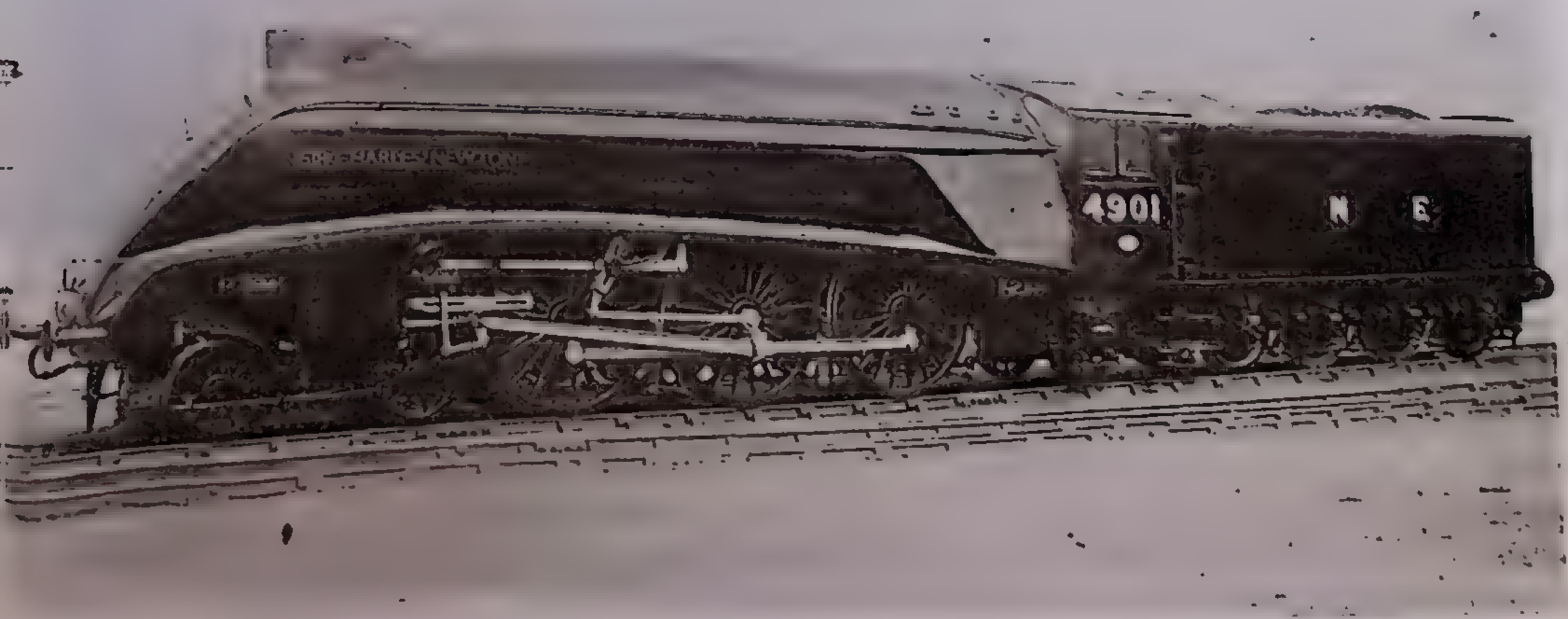

dor tender of the locomotive to travel as passengers forward to Edinburgh.

Next in the train were two coaches, the first accommodating third class passengers in compartments running from a side corridor, and the second containing three first class compartments. These first three cars formed the section of the *Flying Scotsman* which went forward from Edinburgh to Aberdeen.

The fourth car contained a handsome buffet and a spacious ladies' retiring room. In the buffet light meals were served at all hours, seats being provided for 20 passengers at tables for two. The communicating corridor was separated from the buffet by an attractive glass partition. In the ladies' room a competent ladies' maid was in constant attendance.

Next car was a third class passenger vehicle, and then came independent first class and third class restaurant cars with a kitchen car in the center. These three vehicles were an articulated unit. The first class restaurant car was a wonderfully attractive vehicle divided into draft-excluding "bays" by means of light metal screens panelled with synthetic resin as transparent as glass. The color scheme was blue and silver, with a rose-colored carpet, and there was free use of aluminum for decoration. In the third class restaurant, fawn and red uncut moquette upholstery was employed, with aluminum decorations, and the arm chair comfort of this car lacked little of the luxury of the first class.

The all-electric kitchen, placed between the two restaurant cars, also had a pantry and a section of the staff. The train actually is all-electric throughout, not a single cylinder of gas being carried. A storage battery and axle



Headed for London, the Flying Scotsman pulls out of Edinburgh's Waverly Station on its 393 mile run.

generator system is used. The *Flying Scotsman* is, of course, air-conditioned throughout.

Behind the triple restaurant set on the prewar train there came a first class car. Exceptional contributions to passenger comfort were sponge-rubber fillings to head the armrests, loose cushions and ultramodern tubular lighting. In the decorative scheme, shades of blue and pink predominated, combined with aluminum fittings. Long windows afforded magnificent views, and it was always seen to before the war that the side corridor leading to the passenger sections was placed on the west side of the train so that the view of the rugged east coast from the Anglo-Scottish border northwards should not be obstructed.

Behind the first class car, the *Flying Scotsman* of 1939 carried several third class cars, the number varying according to requirements. The cars were normally of the side corridor type, with compartments going off, each compartment seating six passengers in comfortable air-chair seats. Reading-lamps were installed behind each seat, the upholstery was in fawn and brown, and the walls peach-colored with chromium fittings. Last of all came an all-steel baggage car.

Even under war conditions, the *Flying Scotsman,* with its cosmopolitan load of service and civilian travelers of all the United Nations, managed to afford a striking degree of comfort for the passenger. Now that the fight is over, wonderful new facilities of all kinds will soon make their appearance.

King's Cross Station, London, for so long the metropolitan jumping-off point of the *Flying Scotsman,* is one of the most remarkable railroad depots in the world. The station derives its name from a gigantic octagonal monument erected to King George IV on the site in 1830. This was known as "The King's Cross." The monument was pulled down in 1845, but the name remains in the huge railroad station opened on October 14, 1852.

Arthur L. Stead.

A striking feature of the building is the magnificent arched roof, modeled after a riding school in Moscow, Russia. The ribs are bundles of planks which overlap each other endways, forming a built-up bow kept in position by the containing walls. As can be imagined, the walls had to be of immense strength to resist the thrust. The wooden supports were eventually replaced by the iron girders employed today.

King's Cross Station today has 16 passenger platforms, these having grown from the two platforms of nearly a century ago. Between the two original platforms there were no fewer than 14 roads for car storage, these being connected by transverse tracks and turntables, the cars of those days being very short and

light in weight. All the tracks at King's Cross today converge just north of the depot to enter the three tunnels beyond the end of the station. This called for some extremely complicated track-work. Signaling in and around the depot is modern all-electric, having been remodeled recently to meet increasing business.

The route followed by the *Flying Scotsman* runs almost due north from London. The track throughout is well maintained, making for smooth, safe travel. Leaving London on the stroke of 10, the locomotive almost immediately has a difficult task in the negotiation of a four-mile rising grade which includes two tunnels, the Gasworks Tunnel, 529 yards in length, and the Copenhagen Tunnel. The rails in the tunnels are usually wet and greasy, and sand must be unceasingly applied by the engineer so that the driving wheels of his locomotive will not slip. Just outside Gasworks Tunnel, one observes on the left connections leading to King's Cross freight depot, out of which every night there proceed a long procession of fast freights. Also nearby is the King's Cross locomotive depot.

Just outside Copenhagen Tunnel, we reach the summit of the initial rise out of London. Roaring along past Finsbury Park and Harringay, the depot of Wood Green is passed, marking the beginning of an eight-mile climb of 1 in 200. Five more tunnels are threaded along this length, before Potter's Bar is passed, 13 miles from King's Cross. Rapidly accelerating through Hatfield, the *Flying Scotsman* takes on another short climb to reach the 40-arch Welwyn Viaduct, and then, passing through two more short tunnels, reaches the summit level of this portion of the road near Woolmer Green, about 24 miles from London.

The next 20 miles of the route are almost all on a gently falling grade, and near Stevenage, 28½ miles from King's Cross, the locomotive takes its first capacious drink of water from the track troughs. Forward, through Hitchin and Huntington, the train speeds, shortly to reach Peterborough, 76½ miles from London. Slowing down for the sharp curve through Peterborough Station, passengers are able to obtain a very fine view of the magnificent west front of historic Peterborough Cathedral, one of the many historical architectural masterpieces on the route.

From Peterborough, level track makes for fast running for some miles, and passing over a second set of water troughs, the *Flying Scotsman* then tackles the heavy up grade from Essendine to Stoke Summit, 100 miles from King's Cross and the highest point reached between London and York. Five-and-a-half miles north of Stoke Summit, the *Flying Scotsman* reaches Grantham, where a wartime stop is made. Another 20 miles of down grade, and Newark is passed, with a third set of water troughs just beyond. Next comes the depot of Retford, 138½ miles from London, and a little later the *Flying Scotsman* is speeding past Scrooby—the historic home of the Pilgrim Fathers, and place of pilgrimage for many American visitors in and out of uniform.

At Doncaster, 156 miles from King's Cross, the wartime *Flying Scotsman* sets down passengers for various Yorkshire points. Doncaster is the biggest railroad center between London and York, and it is the site of a vast locomotive building and repair plant of the London & North Eastern Railway. From Doncaster to York, a distance of 32¼ miles, the route is level for the most part, lending itself to fast running. Roughly halfway between Doncaster and York, the depot of Salby is passed, with its swing bridge across the River Aire. York is a divisional headquarters of the London & North Eastern Railway, and one of the most important railroad centers in Britain. The main passenger station, where the *Flying Scotsman* is handled, has platforms running up to 1692 feet in length, and the whole structure is covered by a magnificent arched roof. York is much in favor among U. S. visitors to Britain, for this great Roman city is full of architectural beauty and scenic charm, with its famous cathedral dominating the surrounding countryside, and many of the original Roman walls still in perfect condition.

Beyond York lies a beautifully maintained stretch of open track to Darlington. Over this 44¼ mile stretch the *Flying Scotsman* cuts along at a mile-a-minute. Darlington is one of Britain's oldest railway centers, being in the heart of the Stephenson Country. After a brief stop, the wartime *Flying Scotsman* pursues its northward trek through Ferryhill and Durham, and the neighboring coal-mining region, to Newcastle-on-Tyne, 268½ miles from London. Newcastle-on-Tyne Central Station is reached after crossing the River Tyne by means of the imposing King Edward Bridge, opened in 1906. This structure is 82 feet above the river, and accomodates a heavier traffic than any other British railway bridge outside the London area.

From the train windows one sees a wonderful panoramic view of the River Tyne, with vast engineering shops, ship-building plants and industrial establishments of every kind spread along the river banks.

Merrily rattling over the network of manganese steel crossings at the exit to Newcastle Central Station, the *Flying Scotsman* soon leaves the Tyneside zone, electrified for coal traffic, and shortly passes the roadside depot of Killingworth, where on the side of the line one sees George Stephenson's old home, with its sundial over the front door, the work of the "Father of Railways" himself.

Tweedmouth, 334 miles from London, marks the beginning of the Royal Border Bridge, 2160 feet in length and 126 feet above the level of the River Tweed—the stream rendered famous by Sir Walter Scott's novels. The *Flying Scotsman* actually reaches Scotland at Lamberton Toll, about three miles farther north, and on the trackside passengers observe the ingenious sign erected by the railroad company to mark the site of the boundary. At Permanshiel Tunnel, a little farther beyond, the summit point of the King's Cross-Edinburgh run is passed.

After hugging the seacoast for many miles and affording the traveler unique marine views, the *Flying Scotsman* at last approaches stately Edinburgh by way of an amazing configuration of crossovers and several short tunnels under Calton Hill, and comes smoothly to rest in the great Waverly Station in the Scottish capital.

Waverly depot, the largest railroad station in Scotland, is located deep in a valley which splits Edinburgh in two between Princes Street and the Castle. It is constructed on the island principle, with two main platforms 1680 feet long forming the two outer sides, six terminal "bay" platforms in between each end, and the station office in the center. An elevator and a private right of way lead to the adjacent hotel run by the railroad. Outside each of the through track platforms are roads used for the switching and storing of passenger cars, and the whole is under one roof extending to 18 acres.

**Main passenger platforms in York Station are 1692 feet long and are covered by a huge arched roof. York, a city which remembers Roman times, is divisional headquarters of the London & North Eastern, Britain's second largest group railroad.**

# Montreal West

**Trains from three directions converge at one small suburban station before running into Montreal**

A PHOTO STORY BY W.A.B. DAVIDSON

MONTREAL WEST is a great place to watch the trains roll by. Located 4.7 miles west of the Canadian Pacific's Windsor Station in Montreal, it is a hot-spot for passenger traffic of the Canadian Pacific, with the odd Delaware & Hudson, New York Central and Boston & Maine trains thrown in to keep things lively.

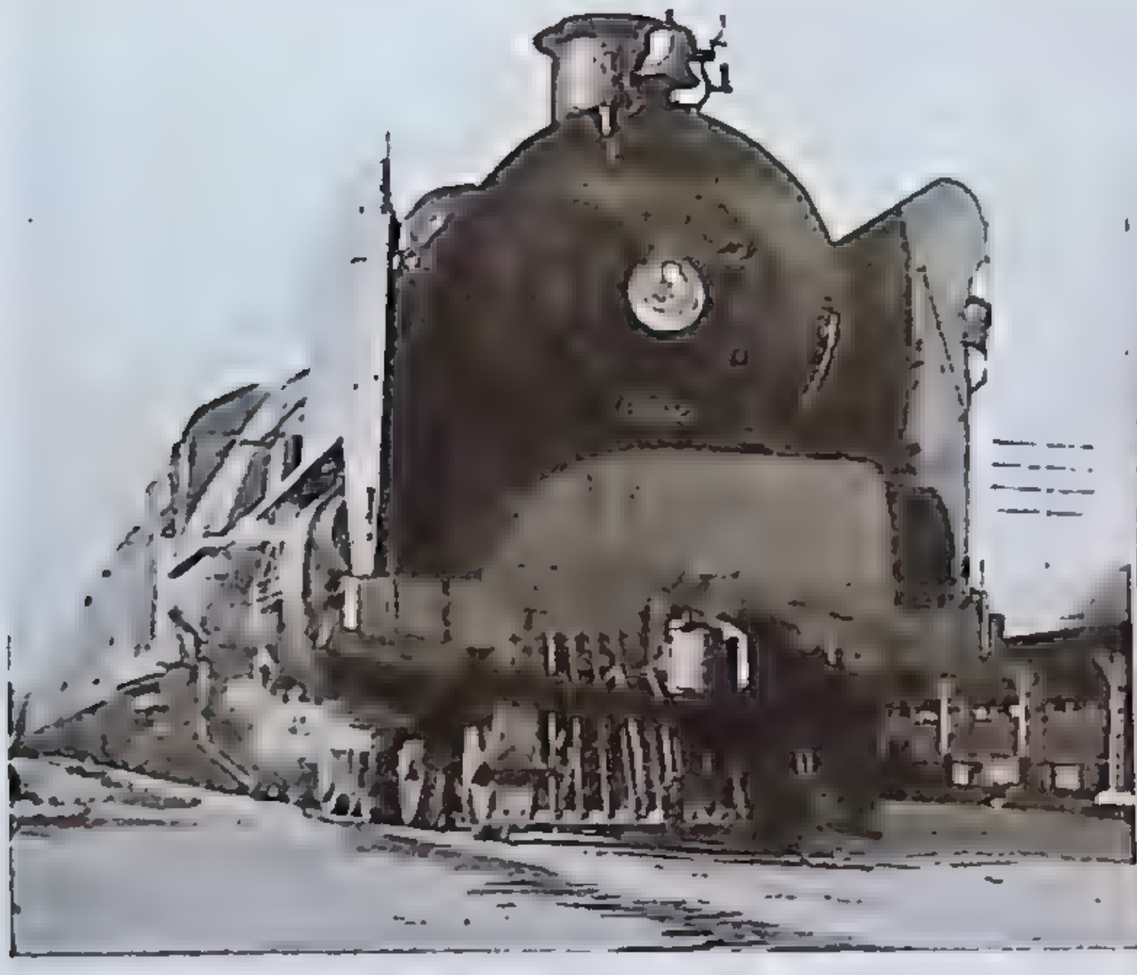
Tracks leading to and from the north, south, east and west converge at Montreal West and all Windsor Station trains are funnelled through this point. A 45-lever electrically operated interlocking tower controls the various routes and there are 12 power operated switch machines on the layout. The tower was first erected in 1917 with manual operation, but has since been enlarged and modernized.

There are, on the average, about 70 scheduled train movements through Montreal West per day. To this can be added special movements, including troop trains, locomotives running light, etc.

Activity around the station starts early in the morning with the arrival of No. 2 from Vancouver hauled by a semi-streamlined Hudson in the 2850 series. One of the early locals is No. 518, coming 40 odd miles from Rigaud, Que., with a rattling load of milk cans in red baggage cars. Most light trains such as this are pulled by the 2500 class small-tendered Pacifics which were built about 1910 with 70-inch drivers, 200 pounds boiler pressure and 34,000 pounds tractive effort.

Before July 15, when government order prohibiting the use of Pullmans on less than 450-mile runs necessitated the cancelling of this train, Delaware & Hudson's all-Pullman *Montreal Limited* arrived at 8 a.m. from New York, coming up the Hudson on the New York Central as train No. 65 as far as Troy, N. Y. Here the D&H took over for the nightly spurt along Lake Champlain for Montreal. Coach service still remains along this same route.

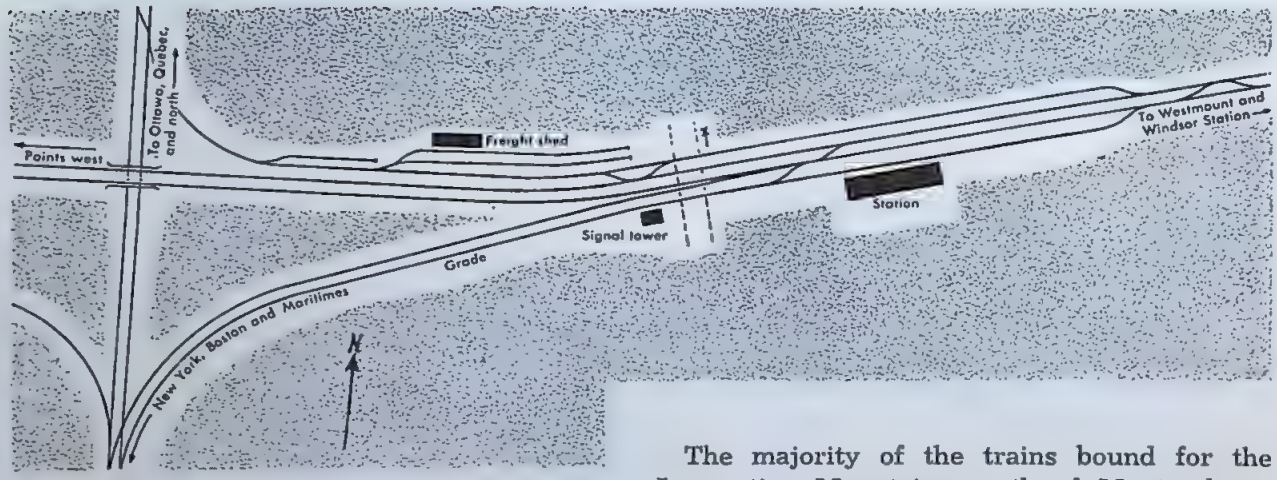
Lots of arrivals and departures crowd the tracks until between 10 and 11 a.m. The Canadian Pacific owns only two 4-8-4's, nos. 3100 and 3101, and these engines can be seen twice daily, one arriving in the early morning on No. 22, the *Overseas*, from Chicago. The other



goes west late at night on No. 31, the *Chicago Express.* These 4-8-4's were built in 1928 with 75-inch drivers, 275 pounds boiler pressure, and exert 61,000 pounds tractive force. They weigh 423,000 pounds without tender.

New York Central's No. 5 pulls in around 10:45 a.m. Headed by a light 4400 class Pacific, this train originates in

**Montreal West Station (opposite page) is a well maintained structure which has changed little since this picture was taken several years ago. The class H-1a Hudson, however, has now been replaced on the pictured train by a semi-streamlined Hudson of the 2850 series, and the resplendent observation car is fast disappearing from all trains except the Red Wing, the Aoulette and some transcontinentals. Left above: Delaware & Hudson's all-Pullman Montreal Limited arrives from New York before being cancelled in July. Above: No. 2803, one of the first Hudsons to appear on the CP, runs at speed with nine cars between Montreal West and Westmount. Below: Locomotive No. 2302 is now, as are most of the others of the original G-3 Pacific series, used in fast freight service. Ten years ago it hauled light passenger trains such as this between Montreal West and Westmount.**




Utica, N. Y., some 233 miles south of Montreal, and carries into the city several baggage cars and coaches and before government restrictions a standard sleeping car which left Buffalo the night before on the *Boston Special.* The sleeper was left at Utica at 1:40 a.m. and transferred to No. 5 for the trip to Montreal. No. 5 also received two sleeping cars from the *Ontarian-Lake Erie* which were headed respectively for Lake Placid and Malone, N. Y.

In the afternoon the CP-CN pool train, No. 15, speeds out of Montreal West bound for Toronto. This train, which once boasted an all-Pullman second section, is now confined to all coach equipment. No. 15, usually hauled by a CN 4-8-4, originates in the CP Windsor Station but pulls over to CN trackage at Dorval, Que.

The majority of the trains bound for the Laurentian Mountains north of Montreal are hauled by 2-8-2's in the 5100 series. Grades, long trains, twisting curves and all that goes with railroading in the mountains, make up the 158-mile run to Mont Laurier. Hence the need for Mikados. The 5100's used are relatively light, weighing but 262,500 pounds without tender. They were built in 1912-13, have 63-inch drivers and exert 43,000 pounds tractive effort.

There is a heavy departure of trains between 4 p.m. and midnight and as all scheduled passenger trains stop at Montreal West it is an ideal spot to glimpse a variety of motive power. It's much easier to secure close examination at these outlying stations such as Montreal West than in the city terminals where ticket gates and foolish high walls often exclude the glamor of the iron road.

One of the recently built dual purpose Pacifics, locomotive No. 2393, heads train No. 40, CP's daily to St. John, N. B. Carrying coaches and Pullmans, this train runs over approximately 200 miles of Canadian Pacific owned track in Maine on the way to the Atlantic Seaboard. All CP locomotives are painted with a broad tuscan red band running the length of the foot board with the tender sides in the same color. The vestibule cab, shown here, originated in Canada as protection against the heavy winters. Well tended and manicured Montreal West Station, below, is typical of most along the line. In front of the station stands a three-car westbound local of wooden coaches. Two signals on a bracket mast, as at left, are used by many roads to govern two tracks, in place of a signal bridge supporting the signals directly over the tracks they govern.

# Tonnage and the Flanged Wheel

**It is the ability to couple cars into trains which makes the railroads our most efficient means of mass transportation**

**BY ERNEST E. NORRIS**
President Southern Railway System

LET'S be sure that we all understand what railroads are. Fundamentally they are one of several means for the transportation of goods and people from one place to another. But the railroads are unique in the field of transportation. For they alone combine the flexibility of separate carrying units, that can be distributed for loading and unloading anywhere and anytime, with the economy and the dependability of mass movement in long trains pulled by one unit of power over a smooth, privately-owned and operated "way" that is relatively immune from the yagaries of season and weather.

The most characteristic symbol of a railroad is not, as many may believe, the dramatic steam locomotive or the streamlined Diesel, but rather a flanged wheel on a steel rail. For it is the flanged wheel on a rail that makes the train possible, that enables many carrying units, coupled together, to "track" behind one locomotive. The result is, in turn, true mass transportation, without which neither mass production nor mass consumption could exist in this country.

Think of what these inherent characteristics of railroads mean in terms of their postwar future. A freight train, for instance, may be composed of any number of a variety of cars, from 50 to 150 or more, depending upon the needs of the day. Each one of these cars could conceivably have been loaded at a different location and at a different time and with different kinds of freight—coal in open-top hopper cars, heavy machinery on flat cars, pipe in gondola cars, vegetables in ventilated box cars, cattle in stock cars, automobiles in wide-door box cars, chickens in poultry cars, canned goods in standard box cars, cement in covered hopper cars, merchandise in container cars, fruit in refrigerator cars—and perhaps a few others that I have overlooked.

These loaded cars were assembled in some central yard and coupled together to make a train which will contain from a thousand to eight thousand tons of freight. The resulting train will be handled from terminal to terminal by a crew of only five men. While it is enroute between terminals it will be on a private roadway over which all movement is at all times under the complete control and protection of the railroad's personnel. Upon arrival at destination, the train will be broken up and the cars distributed to many different locations for unloading.

Compare this method of handling the nation's freight with any other method you know about. Figure out, for instance, how many trucks and drivers or how many airplanes and pilots would be necessary to move just one trainload (say about 2000 tons) of freight from New York to Chicago—fantastically assuming that all the tonnage could be moved by highway or air. Then remember that the railroads handled almost a billion and a half tons of all kinds of freight last year.

I know, we hear a lot these days about the intense competition that the railroads will face, come peace again.

Some of the enthusiasts of air transport claim that the airplane will take over much of the nation's transportation, leaving perhaps only the sand, gravel and coal to be fought over by surface carriers.

The truckers and the bus operators dream aloud of the great, government-built superhighways over which they hope to move much of the country's commerce—at the taxpayers' expense.

The waterway fanatics gleefully eye the tremendous federal appropriations now being proposed for river, canal and harbor improvements which will help them to cut deeply into railroad traffic—they hope.

Nevertheless, after all the excitement is over, I predict that the railroads will still be handling by far the major portion of America's freight and passenger business just as they have always done—and just as they will always do until someone invents a form of transport that can top the railroads for economy and match them in dependability.

I would not have you conclude that I underestimate the keenness of the competition that the railroads will face after the war.

The passenger airplanes will unquestionably cut deeply into the railroads' long haul passenger business—when they are not grounded by ice, snow, fog and weather disturbances. The cargo planes, in flying weather, will beat the railroads in speed, and they will probably capture some of the railroads' lighter, luxury-goods traffic that can afford to pay a high premium for this one special advantage.

The trucks will have a slight advantage in the convenience of door-to-door service and they will skim off some of the cream of the railroads' traffic—such lightweight shipments as they may "pick and choose." The busses will get some of the railroads' short haul passenger business, although more and more, I believe, the bus will become a useful supplement to rail services. Both may do well—as long as they do not have to contend with snowstorms, road blocks, highway congestion and a host of other difficulties over which they have no control.

The slow waterway carriers will also take some of the railroads' business in those limited areas

where navigable waterways are available and in those equally limited periods when they are not "frozen in" or immobilized by low water.

But all the traffic that all the railroads' competitors will be able to attract will not, in my opinion, be enough either to justify their extravagant predictions or to bring disaster to the railroad industry. For no one can question these basic facts:

First in the postwar world, what with its heavy taxes for years to come; its relatively high labor and material costs; its stiff competition in all fields, economy will continue to be one of two major factors in determining what form of transport gets the lion's share of the nation's freight and passenger traffic; and,

Second, with most of the nation's postwar business conducted on the inventory system; with much of its production flowing from assembly-line techniques, dependability and regularity of delivery will continue to be the other major factor in determining what form of transport will get the most of the available freight traffic.

It is pertinent at this point to remind you again that the railroads haul anything and everything, anywhere, at any time, in any kind of weather, at an average cost to the shipper of slightly less than one penny per ton per mile. No other existing form of transportation can say that!

## Railroads Kept Switzerland Neutral

The St. Gotthard route, shown here near Bellinzona on the Italian side of the Alps, was one of the only two practical routes between Germany and its Axis partner, Italy. The other route was bomb riddled Brenner Pass in Austria. Neutral Switzerland ruled that no military material could be shipped through its country during the war. This made it necessary for Germany to divert all arms and troops via Brenner Pass, and since the Pass could not handle all the traffic, civilians and raw materials were routed via St. Gotthard.

Switzerland's tunnels and water power plants, chief peacetime resources, were well mined with explosives in case of attack. Had Germany tried to invade as she did with other neutrals, the usefulness of Switzerland would have been effectively destroyed leaving only a liability for the conqueror, and one less route to Mediterranean points.

# Photograph Quiz

This may be one of the toughest quizzes you ever tried to answer. Four questions are asked about each of 14 pictures on these pages. Look at each photograph, then try to answer:

a. To what railroad system do the locomotive, cars, or structure belong?
b. In what state was the picture taken?
c. The scene is near what station, town, or other identifying location?
d. Fill in the incomplete words below each picture.

Check your answers with those at the bottom of page 37. Give yourself two points for each correct answer. A total of 90 points is top notch. Most people will be more likely to get only 50 points. If you get less than 20 don't mention it to a soul.

3.

1. Locomotive is popularly known as a _____ cab.

4. The mus

2. The event was to celebrate a _____ called

reach this terminal by _ _____.

eeps _____ from getting away.

5. The tracks in the foreground belong to the _____ - _____.

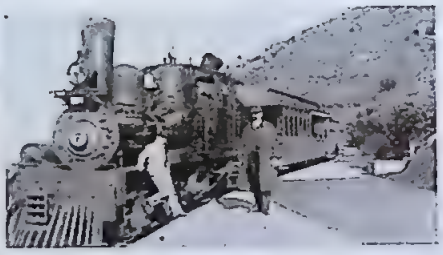
6.

----- -- runs here too.

More

7. The engine is a -------- type.

8. Located on ------- avenue.



9. Lower terminus was ---- -------.

10. Leaves the main line at ----------.

11. The engine is a true -------.

12. This transcontinental train is the _____ .

13. West of the large city of _____ .

14. Largest dome is for ____ .

## Answers to Photograph Quiz

| Photo | Railroad | State | Place | Missing words |
|---|---|---|---|---|
| 1 | Red River Lumber Co. | Calif. | Westwood | steeple |
| 2 | Union Pacific | Calif. | Los Angeles (Union Terminal) | movie |
| 3 | New York Central (West Shore line) | N. J. | Weehawken | a tunnel |
| 4 | South Georgia | Fla. | Greenville | sparks |
| 5 | Erie | Pa. | Starrucca Viaduct (Lanesboro) | Delaware & Hudson |
| 6 | Union Pacific | Calif. | Cajon Pass | Santa Fe |
| 7 | New York, Ontario & Western | N. Y. | Hancock (Delaware Bridge) | Mountain |
| 8 | Pennsylvania | N. Y. | Pennsylvania Station, Manhattan, N.Y.C. | Seventh |
| 9 | Mount Tamalpais & Muir Woods | Calif. | Mount Tamalpais | Mill Valley |
| 10 | Northern Pacific | Mont. | Gardiner (Yellowstone Park) | Livingston |
| 11 | Denver & Rio Grande Western (on Denver & Salt Lake track) | Colo. | Plainview or Scenic or Bear Creek | Mallet |
| 12 | Milwaukee Road | Wash. | Tacoma | Olympian |
| 13 | Cleveland Union Terminal (New York Central) | Ohio | Linndale | Cleveland |
| 14 | Southern | Ala. | Ironton (Birmingham) | sand |

# New Canadian National 4-8-2's

TWENTY new semi-streamlined 4-8-2 locomotives have recently been built for Canadian National by the Montreal Locomotive Works. This new Mountain type design has a completely new face composed of a conical nose containing the headlight and number lamps, a radiator for cooling air brake air encased behind a neat grillage equipped with shutters, and a flared type smokestack of British appearance. The finish is in Canadian National deep green and black with gold striping, aluminum handrails, and brass number plates.

Since the start of war Canadian National has received 91 new steam locomotives for service in Canada and 25 steam and 30 Diesel locomotives for service in the United States. As these new 4-8-2's were received they were broken in on three round trips hauling light trains at slow speeds between Montreal and Brockville. They were then assigned to passenger service.

## Principal Dimensions:

| | |
|---|---|
| Road classification | U-1f |
| Road numbers | 6060-6079 |
| Tractive force, lbs. | 52,500 |
| Cylinder dia. and stroke, in. | 24 x 30 |
| Driver diameter, in. | 73 |
| Weight on drivers, lbs. | 236,950 |
| Weight on pilot truck, lbs. | 57,750 |
| Weight on trailing truck, lbs. | 61,000 |
| Total weight of engine, lbs. | 355,700 |
| Tender weight, working order, lbs. | 281,840 |
| Steam pressure, lbs. per sq. in. | 260 |
| Grate area, sq. ft. | 70.2 |
| Evap. heating surface, sq. ft. | 3584 |
| Tender capacity: Imperial gals. of water | 11,700 |
| Tons of coal | 18 |

# What are your ideas about post-war train travel?

*Santa Fe would like to know*

How do you think post-war passenger cars should be built? What are your ideas about train-to-station telephone service, recreation cars, "snack bars," dinner music? What about train speeds?

Santa Fe has prepared an illustrated questionnaire to give you a chance to take part in planning our trains and travel features of the future.

It's easy to show us what you have in mind. You simply check the idea you like in the questionnaire, jot down any additional ideas you may have, and return the questionnaire to us. We pay postage.

Mail the coupon today and we'll send you the questionnaire *pronto!*

*T. B. Gallaher, Passenger Traffic Manager,*
*Santa Fe System Lines,*
*80 E. Jackson Blvd., Chicago 4, Ill.*

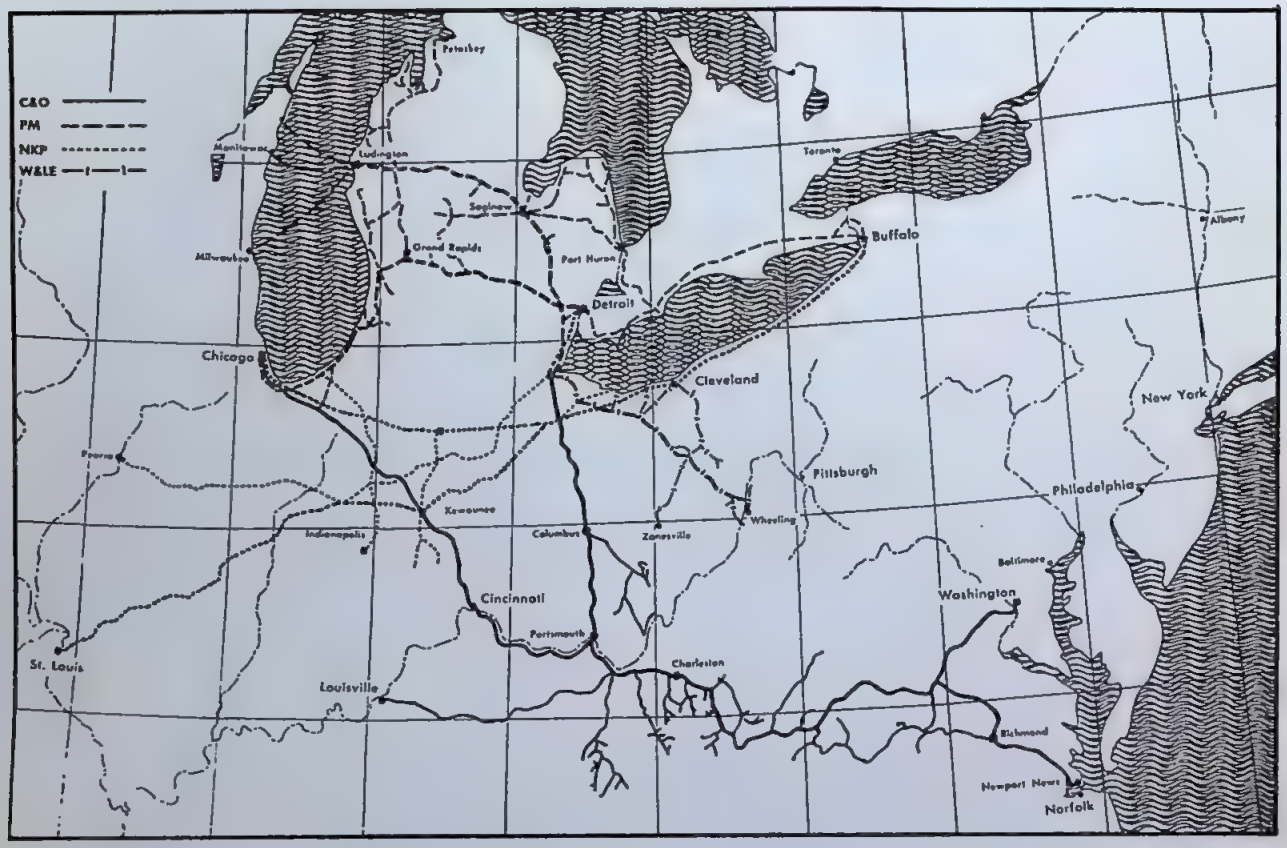
*Please send me your questionnaire on post-war travel.*

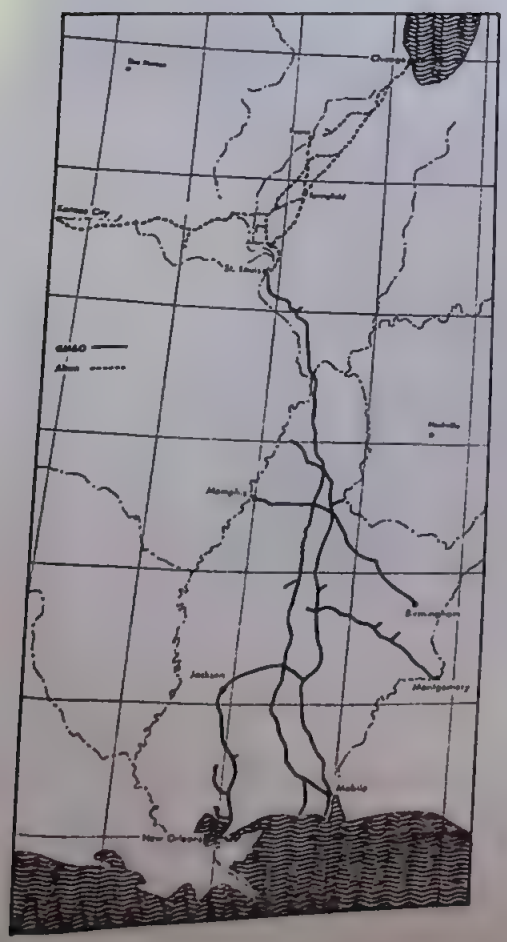
*Name* _____

*Address* _____

*City* _____ *Zone* _____ *State* _____

Tr.



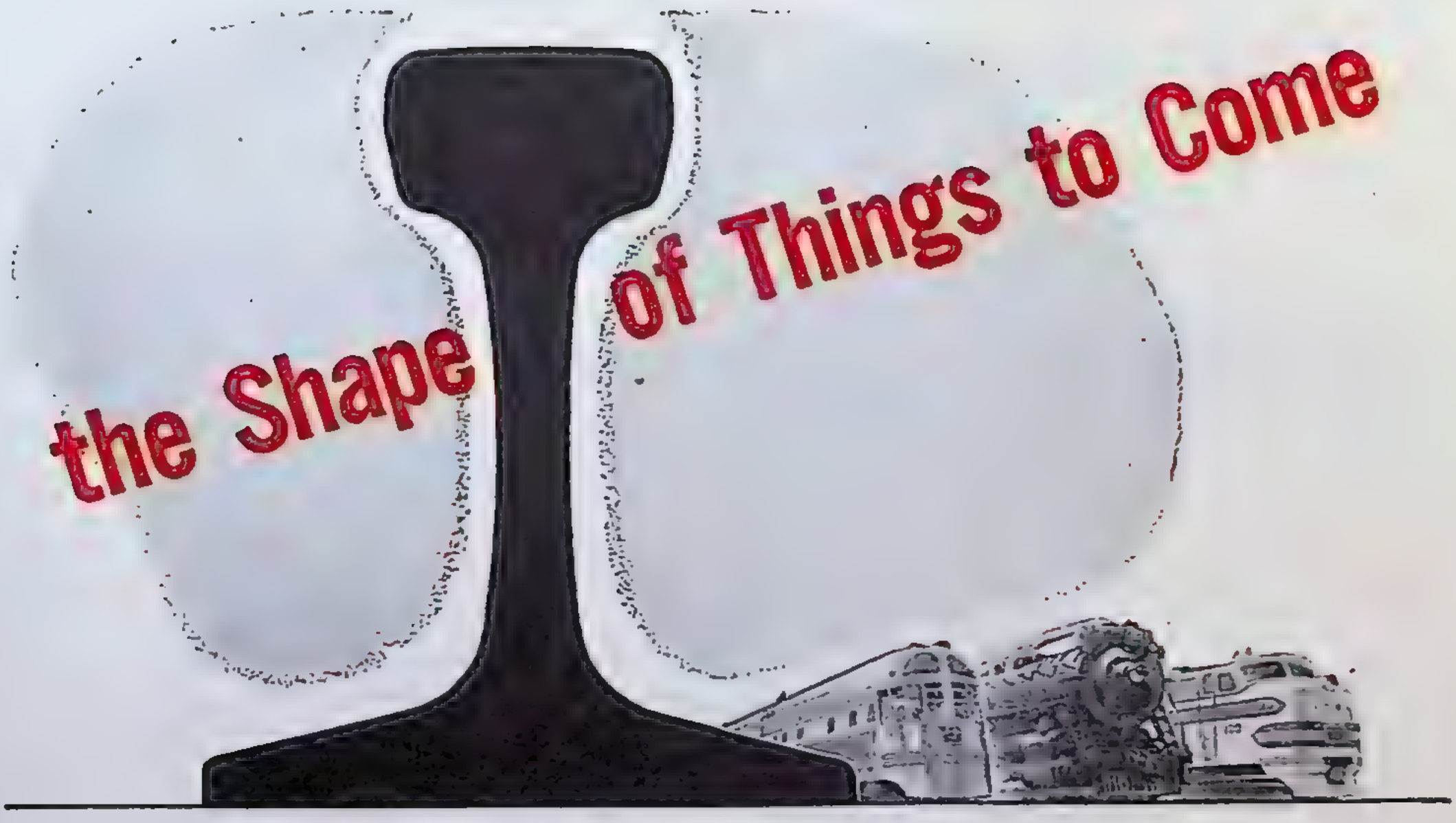

# New Railroad Systems

## A new eastern trunk line and a major north-south carrier are being formed by consolidation

THE major rail routes of the country may be all built as far as rails and right of way, but the process of consolidation and improvement is never ending. Only a decade ago the Gulf, Mobile & Northern was a small line running north from Mobile into Tennessee. Then it consolidated (1914) with Mobile & Ohio and became the lively, aggressive Gulf, Mobile & Ohio, with main lines between Mobile and New Orleans and St. Louis. Now the GM&O is ready, if the necessary permissions are granted, to buy the Alton and enter Chicago. Thus is a new major railroad system created in a day when the railroad builders were thought to be all through.

The map at left shows how GM&O would be extended by acquisition of the Alton. The Kansas City line does not fit the north-south pattern and if present plans are approved will be taken over by Santa Fe and Burlington as part of a new joint St. Louis-Kansas City line competitive with Wabash and Missouri Pacific.

Chesapeake & Ohio (above) is well along in the gradual intergration into one system of its own line, Nickel Plate and Pere Marquette, which it controls by stock ownership, and Wheeling & Lake Erie. C&O and NKP own a majority of Wheeling & Lake Erie stock, but at present do not exercise control. The way in which these other roads extend and ramify C&O is shown by the map.




● Here is the cross-section of a new, improved railroad rail.

It looks very much like any other rail. Actually, it has basic advantages, proved by more than three years' testing on thirty miles of Burlington main line.

This is the Torsion-Resisting Rail ★—created by Burlington engineers. It is important, not only for what it is, but for the particular kind of railroad progress which it typifies. For like so many of the vital railroad improvements which have become realities over the years, this Torsion-Resisting Rail lacks the glamor to bring it into the spotlight of public attention and acclaim.

Railroading is like that. For every improvement you see, there are dozens you never notice. But they're on the job—in the cause of better transportation.

And that's how it is with this new Torsion-Resisting Rail . . . which the Burlington offers as a significant contribution to better railroading for all America.

### ★What the Torsion-Resisting Rail Offers:

1 • Narrower head. Less leverage exerted by wheels.

2 • Stronger fillets for greater strength.

3 • Better weight distribution permits greater height, resulting in substantially increased stiffness of rail. This distributes load more evenly over more ties.

4 • Permits improved joint bar design.

an essential link in transcontinental transportation

**BURLINGTON LINES** • *Everywhere West*

CHICAGO, BURLINGTON & QUINCY RAILROAD • COLORADO and SOUTHERN RAILWAY • FORT WORTH and DENVER CITY RAILWAY
THE WICHITA VALLEY RAILWAY • BURLINGTON-ROCK ISLAND RAILROAD

# OWN YOUR OWN RAILROAD

Building scale models of cars, locomotives and even the right of way, itself, is a hobby leading to endless enjoyment.

Write for our booklet on miniature railroading along with our pre-war catalogue—It's interesting reading—Price 25c.

**MANTUA METAL PRODUCTS CO.**
**Woodbury Heights - New Jersey**


## The Railroads Take a Bow

*After the entire cast of "Carmen Jones" had moved across the country and back, Billy Rose wrote the following letter to J. J. Pelley, president of the Association of American Railroads.*

Dear Mr. Pelley:

As a theatrical producer, I wish to express my admiration and gratitude for the job the railroads and Pullman company have done and are doing in the face of tremendous obstacles. . . . Since my production of *Carmen Jones* moved out of New York, until it reached Chicago, after visiting the principal cities of the Pacific coast, the large company of 100 persons, requiring three sleepers and three baggage cars, did not miss a booking and never did the personnel lack sleeping accomodations. . . . A showman operating traveling attractions is dependent on the railroads and Pullman Company for transportation. . . . As one of those concerned, I am happy to say that in recent hectic times never did officials fail to cooperate to the limit of their power.

(Signed)
Billy Rose

Ziegfeld Theatre, 1347 Sixth Ave., New York 19, N. Y.

# FOR COAL TRAFFIC

The Western Maryland's new Class 150-3 truck Shay-geared locomotive, recently delivered by Lima, is outstanding. In addition to its ability to handle loads on grades up to 10%, it holds loads on down grades because of its geared drive, which makes it very desirable for operations on any railroad having unusually steep grades.

**LIMA LOCOMOTIVE WORKS, INCORPORATED, LIMA, OHIO**

# BUILDERS

Good work, son! Today you're building a make-believe railroad with a toy train and wooden blocks.

Tomorrow you'll help build a new business, a great manufacturing plant, a modern farm... a more prosperous Southland... and a greater America!

That's the kind of future your dad is working for... your dad and all the other 50,000 men and women of the Southern Railway System.

That's why they're working harder than ever before ... making every serviceable piece of equipment do more ... finding new and better ways to railroad ... speeding the movement of fighting men and supplies ... helping to hasten the day of final homecoming.

And tomorrow when you put away your playthings, the Southern will be ready to "serve the South" with even greater efficiency and dependability... because of the experience and know-how that come from handling a record wartime transportation load.

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Ernest E. Norris

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To meet increased postwar demand for TRAINS we need another good pressman able to operate, with helper, two No. 4 Miehle swingback units on a 4:30 to midnight shift. Do we have a reader who is a skilled cylinder pressman and who will appreciate working in a modern, small, friendly shop on work which he understands and likes? If you are qualified, write our superintendent, Robert Fakler.

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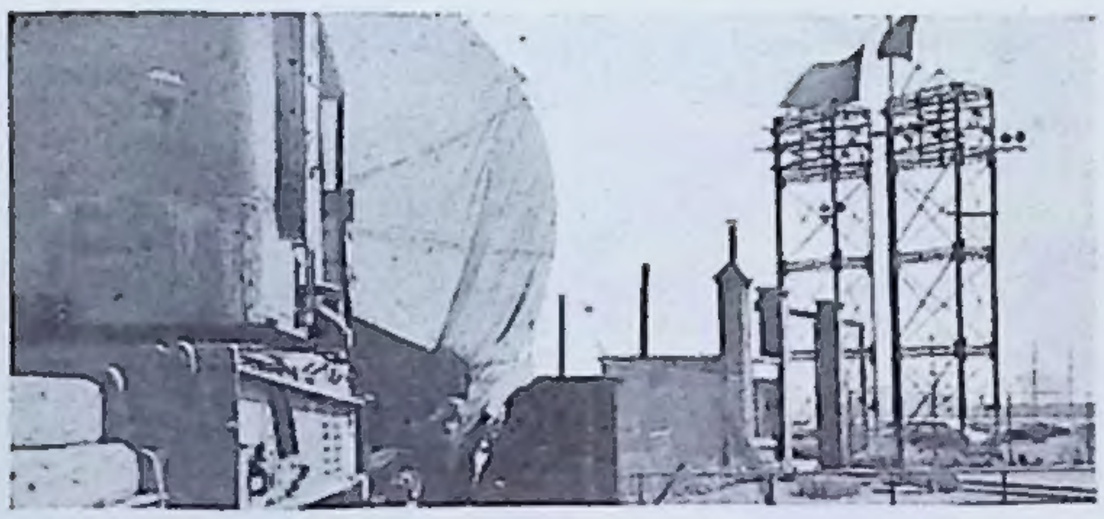
## Quick Shower and Change

Under present conditions the demand for passenger cars has become so rushed that very close terminal scheduling of passenger equipment has become the rule rather than the exception. One day a well known Pennsylvania Railroad train arrived at Chicago Union Station just in time to leave again for New York after a quick and thorough inspection. Passengers appeared at the vestibules and hurried off, cleaners set to work before the train was empty. They had to work fast, but they did a good job. Meanwhile, working parts were checked by mechanics right in the station. The gates were opened for the eastbound service . . . the equipment still headed west inside the station! Passengers flocked aboard, while the cleaners continued their work. At departure time a switch engine coupled to the rear of the train and pulled it to the wye in the yard. There, while the cleaners hastily packed up their cleaning cloths and buckets and brooms and stepped off, a K-4s, steam up and ready to go, coupled to the front of the train and it moved away for New York.

## First Scotch Electric

This photo, taken about 1909, shows the first electrically operated railway in Scotland. It is three foot gauge, just under one mile in length, operating between a private company at Kinlockleven and the quays. Power is supplied to the overhead conductors at 500 to 550 volts D.C. The locomotive is hauling electric generators.

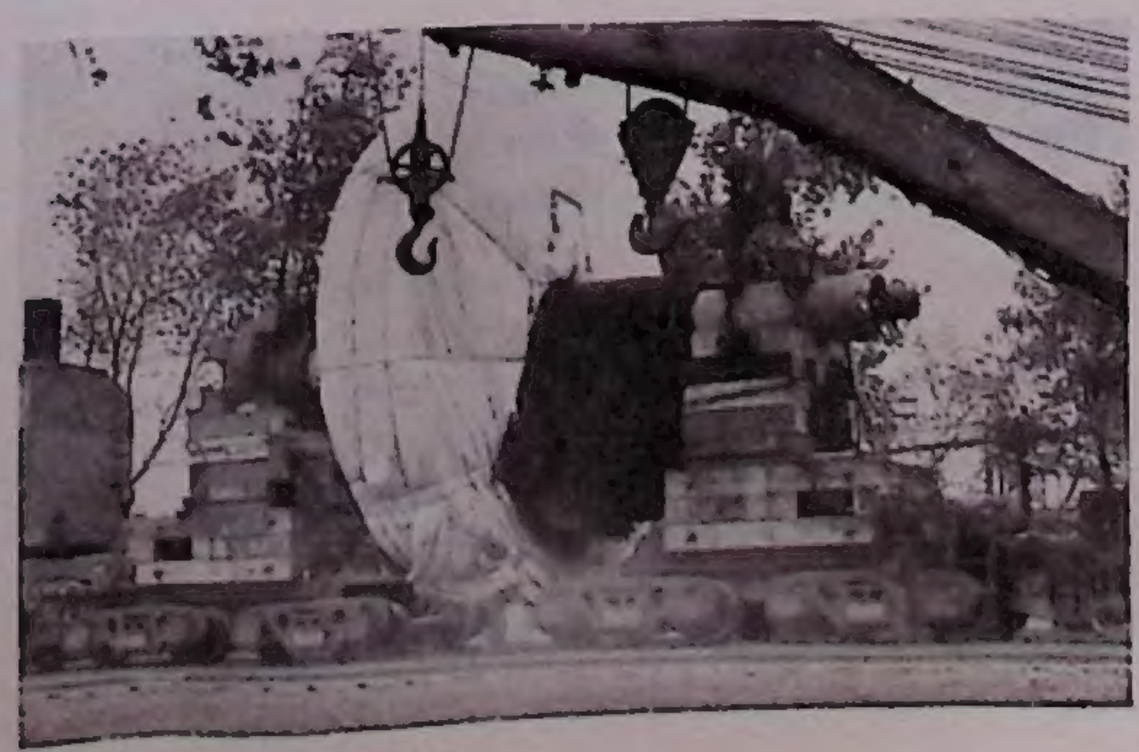


## Delivered Without Dismantling

Rather than completely dismantle a huge electric machine, transfer it piecemeal from one plant to another two miles away and then reassemble the machine, a procedure that would have required at least six months, a new tank armor plate plant in the Chicago area called upon the Elgin, Joliet & Eastern to undertake the transfer which was speedily handled in two special shipments. As a direct result of the expeditious handling of these two unusual consignments, the tank armor plate plant avoided a delay of six months in its production schedule, and the iron horse again demonstrated its ability to meet extraordinary transportation requirements.

The giant stator, 28 feet in diameter and weighing 113 tons, was removed from its previous mill location, after an adjacent outer wall of the building had been removed. The stator was supported by heavy blocking and two heavy steel girder beams resting on truck assemblies of the largest type hot metal ladle car, since a standard railway car of sufficient capacity was not available. The movement was further complicated by the fact that the bed support-castings were below the center of gravity of the stator, and two cranes were required to steady the load and to prevent its tipping over, particularly when the shipment was moving around sharp curves. Furthermore, the bottom of the stator had a clearance of only two inches above the top of rail during the movement.

The rotor (which, when the machine is assembled, fits inside the stator) is somewhat smaller in diameter, but weighs 147 tons. It was handled in much the same manner as the stator, except that the rotor was loaded with the shaft supported by suitable blocking resting on the truck assemblies. Both shipments were handled so carefully by the Chicago Outer Belt Line that the entire machine was reinstalled at the new site with a minimum of disturbance and delay.



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*One of the great dramatic moments in railroading occurred when the Cotton Belt changed the gauge of its 419 miles of track in a single week end. The scene pictured above is our artist's conception of the closing hours of this successful old-time race against time.*

# CHANGING THE MEASURE OF RAILROADING

It was September in 1886. All along the Cotton Belt, from Bird's Point, Mo., to Texarkana, old spikes came out. Rails were shifted. New spikes sank home under swinging hammers. The entire railroad was changed from narrow to standard gauge over one week end. The Cotton Belt had stepped along with the times.

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# Correspondence

Congratulations on Mr. Sagle's far-sighted article on the fireless road locomotive, even in the face of the reactionary objection of a close-minded mechanical engineer . . . . May I suggest a peek even further into the future? Locomotive designers of this far off day will have discovered a method by which even the dead weight of the boiler water in Mr. Sagle's engine may be left at trackside instead of carried in the train. Visualize the parade track of the future. Shortly before train time the engine is spotted next to a stationary steam engine, which engine will be coupled to rods protruding from the round "boiler" and apply power to wind a series of powerful springs contained therein. Our speedy demon would then haul its train over the district to the next engine terminal where a freshly wound loco would be waiting. Fantastic? Not at all! Perhaps so with present-day spring steels, but, as Mr. Sagle says, who knows what the future will bring? Oh, yes, a part of our locomotive would be a small device to go "choo-choo" for the benefit of nostalgic oldtimers.

Rowland Peak Jr., Rm. 6, Union Station, New Orleans 13, La.

The world's largest fireless cooker is No. 4 of the Hammermill Paper Co. of Erie, Pa. Built in 1940 by Heisler Locomotive Works, it will run twice as long (eight hours) without recharging as the ordinary fireless engine. Weighing more than most six-wheel switchers, its principle dimensions are:

| | |
|---|---|
| Wheel arrangement | 0-8-0 |
| Weight, lbs. | 190,000 |
| Length, ft. | 40 |
| Height, ft. | 14 |
| Driver dia., in. | 48 |
| Cylinders, in. | 30 x 28 |
| Tank capacity, cu. ft. | 1100 |
| Boiler pressure, lbs. | 350 |

Thomas Divorman, 19545 Shrewsburry, Detroit 21, Mich.

Pulling out of Marshal, Tex., going west, it is not uncommon to see 30 cars on T&P trains. While this is quite a passenger train the T&P 2-10-4 gets out without a helper. The T&P (during normal times) usually pulls all of the train in one section. No more, however. Coming east out of Fort Worth, we had 20 cars. The second section pulled into Marshall 10 minutes behind us with 17 cars.

Wesley Willett, Pollock, La.

But when you do write the book, spell "omelet" correctly [page 6 August TRAINS]. Under present-day conditions, everyone should have a mental picture of how this word is spelled. [Condensation of approximately 19 reader letters.—*Ed*]

The following item appeared in the November 1893 *Official Guide*: "One of those thoughtful bits of attention which go far to make a railroad popular is found by travelers on the Michigan Central Railroad. Upon the arrival of trains at Niles a boy goes through each car carrying a basket of fresh-cut flowers, which are distributed among the lady passengers."

E. M. Neff, 1515 Maryland Ave., Springfield, O.

The New York Central has a car usually parked in Weehawken which is half mail and half baggage and appropriately numbered 5050.

Theo. A. Gay, 156 Van Buren Ave., Teaneck, N. J.

Although railroad construction battalions did a wonderful job on the tracks between the main cities of Italy, Rome, Naples, etc., the reconstruction job that remains to be done is really something. I imagine that before the war Italian roads were as good as any European countries had. Most of the motive power was electric and they have some locomotives that compare favorably with the Pennsy's GG-1's. All of the rolling stock is a lot smaller and less sturdily constructed. I have yet to see any form of Pullman car.

S/Sgt. Clyde V. Decker, U.S. Army.

# *Running Extra*

When the surrounded gentleman came into the reception room and asked "Will someone show me an issue of TRAINS?" this is what happened. The young lad sat down and read the entire issue to the girls (who had read it already but neglected to mention that little fact). Anyway, this is a good view of such things as the new herald inlaid in our lobby floor (more about that later) and the picture on the wall which is the cover art work for the first issue of TRAINS, November, 1940. As for the girls, you'll have a chance to meet them in the months to come when we'll print individual introductions.

The birth pangs of the new herald began some time ago, the first week in April to be exact, and much planning, labor and linoleum have been spent on it in the months since.

But all is well for it is no ordinary floor design over which visitors to KalmPubCo make their entrance. In the main the design looks like a huge reproduction of the company trademark. But instead of the ambiguous loco front which formerly occupied the center of the emblem, that's an SP Daylight that you now see.

Complete in detail and color, the Daylight has an aluminum nose and other faithful reproduction. The effect is striking and unofficial observers say that 15 per cent of the visitors try to pick it up, mistaking the inlaid linoleum design for a dropped picture, 30 per cent take a long (nearly three-foot) painful stride over it and the remaining 55 per cent meticulously plant their heels in the very center of the locomotive front.

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